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I. INTRODUCTION

This report summarizes results of Forest Plan monitoring and evaluation during Fiscal Year 2000 (FY00). We are continually verifying data and assumptions through monitoring. After analyzing this year's data and the data of previous years, we will continue the process to revise the ***Clearwater National Forest Plan***. Until the Forest Plan revision is completed, the current Forest Plan will remain as the guiding document for the Clearwater National Forest. The current Forest Plan will be kept up-to-date during the revision process utilizing the amendment process. Amendments anticipated to be proposed are described in Chapter 4. Amendments implemented this past fiscal year are summarized in Chapter 5.

The **MONITORING AND EVALUATION REPORT** is organized into seven main sections.

I. INTRODUCTION – provides an overview.

II. MONITORING REPORT – focuses on monitoring requirements by resource, in alphabetical order. Some resource reports contain more than one “ITEM NO.” that refers to the numbering system (established in the Forest Plan) of items to be monitored. The numbering system is not necessarily in numerical order.

III. APPEALS – lists unresolved Forest Plan appeals and project level appeals received in FY00, the status of each and the major issues associated with each. (The term “project” is used throughout this report and refers to any Forest Service activity on national forest land, such as campground construction, trail maintenance, and timber sales.)

IV. PLANNED ACTION – identifies actions the Forest plans to take in FY00, and beyond, to implement the Forest Plan.

V. IMPLEMENTED CHANGES – discusses agreements and actions concerning ecosystem management, the Forest Plan, and amendments to the Forest Plan.

VI. LIST OF FOREST CONTACTS – includes acknowledgment of people who contributed to the development of this report.

VII. FOREST SUPERVISOR APPROVAL – signature by the Forest Supervisor.

II. MONITORING REPORT

ECONOMICS

ITEM NO. 1 - Quantitative Estimate of Performance Output or Services

Frequency of Measurement: Annual
Reporting Period: Annual

MONITORING ACTION

Present resource outputs and activities for FY00.

ACCOMPLISHMENTS/FINDINGS

See Table 1, "COMPARISON OF OUTPUTS AND ACTIVITIES WITH THOSE PROJECTED IN THE FOREST PLAN," for outputs and activities occurring in FY00, along with the percent achieved compared with Forest Plan projections.

ITEM NO. 17 - Document Cost of Implementation Compared With Plan Cost

Frequency of Measurement: Annual
Reporting Period: Annual

MONITORING ACTION

The Forest Budget and Finance Officer will compile actual costs for comparison with Forest Plan projected costs.

ACCOMPLISHMENTS/FINDINGS

See Table 2, "COMPARISON BETWEEN YEARLY EXPENDITURES (IN THOUSAND \$) AND FOREST PLAN PROJECTIONS (IN 2000 DOLLARS)," for a display of cost comparison.

**Table 1. COMPARISON OF OUTPUTS AND ACTIVITIES WITH THOSE PROJECTED IN THE
CLEARWATER NATIONAL FOREST PLAN**

OUTPUT or ACTIVITY	UNIT of MEASURE	FY96	FY97	FY98	FY99	FY00	First Decade Average Annual from Forest Plan	FY00 % of Forest Plan Predicted
<u>RECREATION</u> ⁴								
Developed Use	MRVDs	303.3	367.7	416	366	304	201	151%
Dispersed Use								
Wilderness ¹	MRVDs	35.4	37.7	40	35	29	121	24%
Non-Wilderness	MRVDs	819.3	1,275.8	1,352	1,200	996	686	145%
<u>WILDLIFE & FISH</u>								
Wildlife Habitat Improvement								
Non-structural	Acres	1,000	700	1700	900	1225	1,300	94%
Fish Habitat Improvement								
Non-structural	Acres	95	116	135	238	29	219	13%
T&E Habitat Improvement								
Non-structural ²	Acres	500	0	0	620	450	NA	NA
Structures	Str.	0	0	0	0	0	NA	NA
<u>RANGE</u>								
Grazing use	MAUMs	10.7	10.5	9.7	9.0	8.6	16.0	53%
Range improvement								
Non-structural ³	Acres	1,000	500	300	300	313	7,000	4%
Structures	Str.	1	1	1	1	2	NA	NA
Noxious Weed Control	Acres	200	200	1150	350	1025	380	270%
<u>MINERALS</u> ⁵								
Minerals Management	Cases	73	80	101	92	107	265	40%
<u>TIMBER</u>								
Volume Offered								
Roaded Primary	MMBF	21.3	32.3	20.5	21.2	8.1	90	9%
Roaded NICS	MMBF	10.5	21.0	6.7	2.7	2.6	10	26%
Unroaded	MMBF	0	0	3.0	0	0	73	0%
Volume Under Contract	MMBF	78.5	73.6	77.5	68.6	55.5	NA	NA
Reforestation							14,416	12%
Appropriated Funds	Acres	1,513	549	923	656	636	NA	NA
KV Funds	Acres	2,111	1,751	1,355	1,456	1,031	NA	NA
Timber Stand Improvement							1,928	0%
Appropriated Funds	Acres	724	54	638	782	0	NA	NA
KV Funds	Acres	119	671	123	1	0	NA	NA
<u>FUELS MANAGEMENT</u>								
Natural Fuels Treatment	Acres	429	709	2,838	3,744	2,478	NA	NA
Brush Disposal	Acres	955	1,252	1,418	1,075	942	NA	NA
Wildland Fire Benefit	Acres			4,385	2,411	1	NA	NA
<u>FACILITIES</u>								
Trail Const./Reconst.	Miles	12.1	46.8	85.3	50.1	18.2	14.0	130%
Trail Flood Repair	Miles	235.2	53.2	NA	NA	NA	NA	NA
Road								
Construction	Miles	1.8	1.0	1.1	1.4	8.6	69.0	13%
Reconstruction	Miles	72	52.1	85.3	33.3	33.1	NA	NA
Obliteration	Miles	15	52.0	134.0	83.5	47.4	NA	NA

¹ Figures for wilderness were based on the expectation that an Idaho Wilderness bill would classify additional wilderness on the Forest. This has not happened yet.

² A portion of the wildlife habitat improvement also benefited T&E species.

³ This figure represents the acres harvested by methods that provide a temporary forage base for range resources.

⁴ FY 97-00 figures cannot be compared to 96 because of accounting method changes.

⁵ Due to the changes in definitions of accomplishment in FY96-00, case numbers cannot be directly compared to Forest Plan estimates.

NA - The Forest Plan did not project an average annual output for this output or activity or it is no longer comparable.

Table 2. COMPARISON BETWEEN YEARLY EXPENDITURES (IN THOUSAND \$) AND FOREST PLAN PROJECTIONS (IN FY00 DOLLARS)

ACTIVITY DESCRIPTION	FY96	FY97	FY98	FY99	FY00	FOREST PLAN	FY00 % of Forest Plan Predicted
General Administration	1454	1499	1310	1159	574	3266	18%
Fire Protection	1358	1372	2100	2038	1821	1320	138%
Fire Protection Fuel	129	161	239	361	248	379	65%
Timber Sale Prep/Admin	1043	849	1215	1537	1302	3930	33%
Timber Resource Plans	0	0	0	0	0	444	0%
Timber Silvicultural Exams	207	206	105	62	21	1303	2%
Range	68	59	51	39	33	158	21%
Range Noxious Weeds	28	41	57	93	90	44	209%
Minerals	105	116	115	95	113	255	44%
Recreation	1273	933	985	1004	879	1575	56%
Wildlife and Fish	909	725	1045	906	935	1651	57%
Soil and Water	463	499	559	747	439	595	74%
Maintenance of Facilities	223	214	242	245	264	731	36%
Special Uses	78	71	83	35	149	136	109%
Land Ownership Exchange	108	51	67	116	117	200	58%
Land Line Location	153	150	150	114	80	531	15%
Road Maintenance	724	748	854	1099	898	1237	73%
Trail Maintenance	0	257	173	322	254	654	39%
Co-op Law Enforcement	99	85	97	49	74	102	73%
Reforestation Appropriated	767	466	714	468	277	2653	10%
TSI Appropriated	114	38	168	259	38	622	41%
Tree Improvement*	493	413	437	431	387	90	430%
KV Reforestation	1757	1663	1179	1419	890	4100	22%
TSI KV	38	119	86	2	12	128	9%
Other KV	142	196	48	9	0	882	0%
Other CWFS Trust Fund	940	348	888	1207	1532	1002	153%
Timber Salvage Sales	4794	4476	2860	2092	1510	448	337%
Brush Disposal	532	528	457	392	328	2444	13%
Range Betterment	3	4	4	4	4	12	34%
Construction Recreation Facilities	-4	109	38	261	90	128	70%
Facility Construction	2	0	0	0	0	850	0%
Engineering Construction Supp	616	300	256	150	199	2516	8%
Construction Capital Investment	1076	-20	48	625	6	3798	0%
Trail Construction/Reconstruction	223	351	309	376	385	441	87%
Timber Purchase Road C/R	0	0	0	0	0	6731	0%
Land Acquisition	32	26	21	39	40	96	42%
Insect/Disease Sup	50	61	49	77	28	0	NA
Economic Recovery	77	99	72	9	63	0	NA
Appeals/Litigation	47	68	49	46	26	0	NA
Ecosystem Management	821	674	682	1026	1204	0	NA
Federal Highway Relief	1238	2032	978	197	0	0	NA
Flood Repair	817	2151	2283	102	0	0	NA
TOTAL	\$22,996	\$22,136	\$21,070	\$19,211	\$15,310	\$45,452	34%

*Includes Lenore Seed Orchard management and genetic tree improvement program funds not in original Forest Plan projections.

EFFECTS

ITEM NO. 22 - Effects of National Forest Management on Adjacent Land and Communities

Frequency of Measurement: **Annual**
Reporting Period: **Annual**

MONITORING ACTION

A report will be prepared to determine concerns and goals regarding Forest management.



FINDINGS

ISSUES AND CONCERNS: Primary concerns during FY00 included:

ROADLESS INITIATIVE

On October 13, 1999, President Clinton directed the Forest Service to develop a proposal to protect more than 50 million acres of inventoried roadless areas on national forest lands throughout the nation. Public meetings and hearings were held across the country to allow people to express their opinions on the subject.

In May 2000, a proposed rule was released followed by an intense period of public involvement. The Clearwater National Forest conducted information meetings at five locations: Orofino, Kooskia, Lewiston, Lapwai, and Moscow. Briefings were also conducted for local elected officials and the governing body of the Nez Perce Tribe. Public comment meetings in Orofino and Lewiston followed the information sharing sessions. Interest in the local area was great due to the Forest's high percentage of roadless land (53%).

In summary, some individuals were concerned a decision was being made at the wrong scale; that a decision regarding the management of roadless areas should be made at the local level. Others were concerned that lack of management and access to roadless areas would result in declining forest health and catastrophic fires. Many were concerned the proposal would decrease recreation opportunities for off highway vehicles. Others were concerned about the amount of land that wouldn't be available for timber harvest and the economic and social impacts to local communities.

On the other side, many speakers supported increased protection for roadless areas and expressed a desire for more protection than was proposed in the preferred alternative. Many requested that timber harvest be prohibited in roadless areas. Some advocated the elimination of off highway vehicle use in roadless lands.

A final rule that would prohibit road building in roadless areas has been published in the Federal Register. That rule would also ban timber harvest in roadless areas unless it is for stewardship purposes. At this writing the final rule is being reviewed by the new administration.

ROADS POLICY

While no local meetings were held, many local citizens also followed and/or participated in the development of the national roads policy. The effort was initiated in 1998 with an interim rule that temporarily suspended road construction and reconstruction in certain unroaded areas.

That policy would rely heavily upon scientific analysis and public involvement at the local level to provide a road system that is safe, responsive to public needs, environmentally sound, affordable and efficient to manage.

Local proponents say the policy makes sense since the Forest Service has such an extensive road system it can't currently be maintained. Others objected to the policy, asserting increased federal restrictions and gridlock would be the outcome of the process.

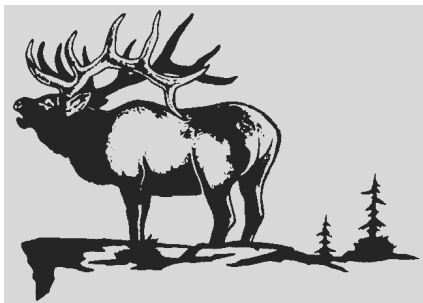
A final policy has been approved. It includes public involvement and scientific analysis processes that will be implemented to facilitate better decision-making. It also focuses on decommissioning unneeded roads and maintaining important access roads. At this writing, the roads policy is also being reviewed by the incoming administration.

THE FIRE SEASON OF 2000

The Forest experienced an unusual fire season in FY00. The active season was a long one - early July through mid-September. Fire danger was the most extreme experienced in the last 30 years. The Forest detected 117 fires that eventually spread over 12,517 acres. This is a lower-than-normal number of fires and a higher-than-normal acreage figure.

News of the severe fire activity in Idaho was reported in large media outlets throughout the country. As a result, many potential visitors carefully evaluated their vacation options and some chose alternate locations. Some out-of-area visitors and many local recreationists experienced traffic delays, area closures, fire restrictions and smoky conditions because of the fire activity. Many recreation-based businesses reported customers cancelled plans to visit Idaho due to media coverage of Idaho's fires. These cancellations adversely affected many recreation-dependent businesses.

Impacts to local communities weren't all negative. Many community businesses received income due to the demands for goods and services generated by firefighting efforts. The fires also resulted in employment opportunities for local residents. Some were hired in a variety of support positions such as sawyers, truck drivers, camp help, etc. while others were provided an opportunity to attend firefighter training and actually work on the fire line.



ELK HABITAT INITIATIVE

In portions of the Clearwater Basin, Idaho's renowned elk herd is in serious decline, largely due to the loss of the shrubby browse favored by elk. The natural balance of forage for all animals was upset when fire suppression began in the 1940s. Experts agree that habitat decline, hunting pressure, predators, and harsh winters are the primary causes.

The Clearwater Basin Elk Habitat Initiative was begun in 1998 to address the problem and find solutions. It is a collaborative effort with state and federal agencies, and many private sector partners participating. A self-organized citizens group, the Clearwater Elk Recovery Team, is actively working to find solutions. These groups and many interested individuals celebrated the Initiative and associated accomplishments at an anniversary celebration in February 1999.

A focused effort to improve wildlife habitat in the North Fork subbasin continued in FY00. A team of specialists is working on the Middle-Black Environmental Impact Statement, a plan to address habitat concerns in the area. A draft environmental impact statement should be released during the spring of 2001. The release will be followed by a public comment period.

LEWIS AND CLARK BICENTENNIAL OBSERVANCE

From 2003-2006, thousands of visitors are predicted to visit Idaho to celebrate the 200th anniversary of the Corps of Discovery's voyage. In preparation for these visitors, the Clearwater National Forest is making plans for enhancing visitors' experiences with an improved visitor center at Lolo Pass, interpretive signs along the Highway 12 corridor, and informative publications.

In FY00, the Forest prepared to implement a permit system to manage use in the high elevation portion of the Lolo Trail corridor during the Bicentennial years. This system will be implemented by the summer of 2003 and is designed to protect the rich cultural and fragile natural resources in the area. In addition, the Forest, the Clearwater-Snake Lewis and Clark Bicentennial Committee, and the Clearwater Economic Development Association initiated the development of a seven-county public safety plan. During the year, the contractor identified public safety problems and strategies to address the problems. In FY01, work will continue to finalize the plan, identify needed resources, and tap possible funding sources.

NORTH LOCHSA FACE ECOSYSTEM RESTORATION PROJECT

Clearwater National Forest Supervisor Jim Caswell approved the North Lochsa Face Ecosystem Restoration project in April 2000. The high-profile project included two decisions: one to implement a variety of projects designed to restore aquatic and vegetative conditions, and a second regarding motorized and non-motorized use of roads and trails. The North Lochsa Face project area covers a 128,000-acre area in the Lochsa River drainage between the Lolo Motorway and U.S. Highway 12. The Pete King drainage forms the southwestern border while the Fish Creek drainage forms the eastern border of the project area.

Both decisions were appealed. The Forest's decision regarding motorized and non-motorized use of the area was upheld and is being implemented. The decision regarding restoration activities was found to contain some ambiguities and the Forest was asked to provide additional clarification. A supplemental environmental impact statement is being prepared and should be issued sometime during the spring of 2001.

SPECIAL PROJECTS/PROGRAMS

RURAL COMMUNITY ASSISTANCE PROGRAM

The Forest continues to work with local communities to secure funds through the Farm Bill's Rural Community Assistance program. In FY00, grants were awarded to the following:

- *Communities Creating Connections (Kooskia) - \$2,000 for a "Writing Our World" workshop*
- *Kooskia Revitalization Committee - \$8,900 to develop internet market linkages that will result in a grower's network for dual purpose medicinal plants*
- *Nez Perce Tribe - \$20,000 for a Lapwai Valley refuse/RV disposal site*
- *City of Weippe - \$3,000 to rehabilitate the Hilltop Alano Building*

RECEIPTS TO COUNTIES

Twenty-five percent of the money received from the sale and use of a variety of national forest products and services is returned to counties on which national forest land is located. These funds are dedicated to the upkeep and maintenance of roads and schools. The Clearwater National Forest is projected to contribute \$274,635 in FY00.

Payments to counties have declined dramatically in recent years, primarily due to the sharp decrease in the level of timber harvested on the Clearwater National Forest. The *Secure Rural Schools and Community Self-Determination Act of 2000* (Public Law 106-393) provides the opportunity for an increased, stable payment to local counties. Counties will have the option to remain with the current system or elect a payment that is based on an average of the state's three highest payments between 1986 and 1999. The Forest is working with local counties as they work through their options.

ITEM NO. 23 - Effects of Other Agencies on the National Forest

Frequency of Measurement: Annual
Reporting Period: Five Years

MONITORING ACTION

A report will be prepared to determine effects of the activities of other agencies on the Forest.



ACCOMPLISHMENTS/FINDINGS

The Clearwater National Forest believes in the value of coordination, cooperation and collaboration. Forest employees routinely work with many agencies through formal and informal processes. Key contacts include:

IDAHO DEPARTMENT OF FISH AND GAME (IDF&G) ♦ IDF&G routinely provides advice regarding projects affecting fish and wildlife resources. Department personnel also enforce IDF&G laws on the Forest.

IDAHO, LATAH AND CLEARWATER COUNTY SHERIFFS' DEPARTMENTS ♦ Through a cooperative agreement these departments patrol campgrounds and forest roads and assist Forest Service law enforcement officers. These counties participated in the development of a Lolo Motorway public safety plan.

NATURAL RESOURCES CONSERVATION SERVICE ♦ This agency monitors precipitation stations on the Forest.

IDAHO DEPARTMENT OF LANDS ♦ Forest Service personnel coordinate with IDL when issuing burning permits. In addition, the agencies work together to train firefighters and suppress wildland fires.

NATIONAL PARK SERVICE ♦ The Forest coordinates with the Nez Perce National Historic Park regarding the management of the Lewis and Clark National Historic Trail and the Lolo Trail National Historic Landmark. The Forest also works with the Park in the development of interpretive materials and plans for the upcoming Lewis and Clark Bicentennial.

IDAHO DEPARTMENT OF PARKS AND RECREATION ♦ The Forest continues to apply to the Department's grant program and participate in the Park 'n Ski program.

CORPS OF ENGINEERS ♦ The Forest shares resource management information and expertise with Corps managers. Forest Service offices routinely provide information about Corps recreation sites.

U.S. FISH AND WILDLIFE SERVICE - DWORSHAK HATCHERY ♦ Forest personnel provide information about visitor information at this site. In addition, the Forest participated in Free Fishing Day activities with Fish and Wildlife Service personnel

IDAHO DEPARTMENT OF COMMERCE ♦ In FY00, the Forest produced the brochure *Lewis and Clark and the Native Peoples of Idaho* in cooperation with the Department.

IDAHO DEPARTMENT OF TRANSPORTATION ♦ The Forest coordinates with the Transportation Department primarily on issues related to U.S. Highway 12 and the Lolo Pass Visitor Center.

FIRE

GOAL

Prevent, suppress and manage fire commensurate with resource values to be protected, while recognizing the role of fire in the ecological processes.

STRATEGY

- Analyze and display organizational needs using the ***National Fire Management Analysis System (NFMAS)*** to determine the most cost efficient fire management organization.
- Continue to stress **SAFETY** as the first priority in all fire management activities with special emphasis on the aviation program, firefighting, and recurrent training in ***"Standards for Survival"***.
- Continue to evaluate fire protection boundaries to promote economic and efficient fire suppression.
- Continue fire use as a tool when its use is determined to accomplish management objectives for fuel hazard reduction, site preparation, wildlife habitat improvement and ecosystem management through prescribed fire and wildland fire use programs.
- Provide a continuous cadre of specialists with the knowledge and experience to accomplish prescribed fire programs and participate as members of the wildland fire Incident Command System.
- Ensure sufficient brush disposal funds will be collected from timber sales to treat activity fuels created by each project, where deemed necessary to treat those fuels.
- Implement ***"Ecosystem Management"*** concepts into fire management programs. Look at ways of how fire can be utilized and incorporated into sustaining healthy ecosystems, concentrating on restoration of fire adapted ecosystems.
- Continue to support and be involved in achieving the goals of habitat improvement and the restoration of elk under the Clearwater Elk Initiative.
- Continue to implement the ***North Idaho Smoke Management Airshed*** guidelines and coordinate prescribed burning and wildfire smoke impacts with this group and adjacent cooperators.
- Continue the ***"Minimum Impact Suppression Tool"*** concept (***MIST***) for lands under the protection of the Clearwater National Forest.
- Continue use of appropriate management responses under ***Federal Wildland Fire Policy*** as necessary to meet fire management objectives.

MONITORING ACTION

The Fire staff will annually prepare and implement a ***Fire Management Plan (FMP)*** that will provide specific direction for accomplishing the fire management objectives outlined in the Forest Plan.

ACCOMPLISHMENTS/FINDINGS

The Forest continued implementation of the ***Federal Wildland and Prescribed Fire Management Policy***. This policy was adopted nationally in 1998 and incorporates nine guiding principles and provides consistent fire management direction for all federal agencies. Training sessions explaining national fire management policy and the links to the ***Clearwater National Forest Plan*** were held for agency personnel, fire cooperators, and the public, specifically opportunities for fire use and management to support the Clearwater Elk Initiative and other aviation and fire management goals.

The Forest led a coordinated effort with the Bitterroot and the Nez Perce National Forests to update the ***Selway-Bitterroot Wilderness Wildland Fire Use Guidebook***. This longstanding program of prescribed natural fire or wildland fire use in the Selway-Bitterroot Wilderness was updated to reflect changes made in ***National Fire Management Policy***. This revision was approved in the late spring of 1999, and was reprinted as the ***Selway-Bitterroot Wilderness Wildland Fire Use Guidebook***. Wildland fire use is currently permitted on about 260,000 acres of wilderness and approximately 150,000 acres of non-wilderness lands within this plan.

- *The Forest had one fire that met the criteria for wildland fire use.*
- *This fire burned a total of <1 acre in 2000.*

The ***Clearwater Fire Management Unit Guidebook*** was completed in May 1999. This plan will utilize ignitions from natural sources in a safe and cost efficient manner to protect or enhance resources on the Forest. This expands wildland fire use to non-wilderness lands on the Forest consistent with direction in Appendix D of the ***Clearwater National Forest Plan***. The fire management unit is largely within the North Fork Ranger District.



- *Wildland fire use will be permitted on 515,788 acres and not allowed on 121,056 acres.*
- *During the 2000 fire season, one fire met the prescriptive and risk criteria and burned a total of <1 acre.*

No landscape scale prescribed fires (ignited by managers) were accomplished.

In the area protected by the Clearwater National Forest, 116 fires were initial attacked. Several of these required substantial resources and time to suppress. There were two ignitions managed for the benefits of wildland fire within the Selway-Bitterroot Wilderness and the Clearwater fire management unit. On national forest lands protected by IDAHO DEPARTMENT OF LANDS and CLEARWATER POTLATCH TIMBER PROTECTIVE ASSOCIATION (CPTPA), eight fires were successfully initial attacked.

The Forest maintained an excellent safety record.

MIST guidelines were used for all lands protected by the Clearwater National Forest. **MIST** guidelines are specifically written to protect resource values within wilderness, research natural areas, cultural sites and any other sensitive areas from fire suppression impacts.

FUNDING

Initial suppression funding to the Forest was minimal, which resulted in the cancellation of all but essential training opportunities and planning for reduced firefighting capability. Many firefighters accepted positions elsewhere; the Forest was unable to offer employment. Late in May, suppression funding was increased and Districts were able to hire near normal numbers of firefighters.

The 2000 fire season was below average on the Clearwater National Forest in terms of numbers of fires. The Forest was successful at meeting the fire protection standards outlined in the **Clearwater National Forest Plan** given the level of activity and funding provided for the protection of resources.

Funding to protect Forest resources from fire is based on the **National Fire Management Analysis System**, an analysis tool designed to determine the most efficient level of fire protection budget. This analysis is based on fire history, fire weather, and past organizational levels. It then establishes the most cost efficient mix of personnel, equipment, and budget needed to provide firefighting resources to meet land management objectives. The program was last updated in 1997 and the most cost efficient level was determined to be \$2,454,559.

- *The Forest received a wildland fire protection budget of \$1,773,000 for FY00, which is 72% of the most efficient level.*

The 2000 fire season was above average on the Clearwater National Forest in terms of annual acres burned. The 10-year average (1985-1994) acres burned were 3,182.

- *In 2000, the Forest burned 12,336 acres.*

The 10-year average (1985-1994) for number of fires is 171.

- *In 2000, the Forest had 126 fires.*

In FY00, a severe fire season in other parts of the country resulted in many requests for overhead, crews, aircraft, and equipment. Summer began in North Idaho in early July with high daytime temperatures, low afternoon humidity, and poor night recoveries. August burning conditions became more severe with Energy Release Components (ERCs) and Burning Indices (BIs) above previous records for virtually the entire month of August. All prescribed burns were curtailed by national direction for approximately 30 days during May and June. In mid July, ERC trends coupled with the level of fire activity in the nation curtailed nearly all opportunities for Wildland Fire Use.

On several occasions during August, firefighters were removed from their efforts on incidents at the Powell area and the North Fork Ranger District when firefighter safety could not be assured and the probability of control was low. Other fires were not staffed due to shortages of suppression resources and commitments to fighting higher priority fires threatening communities.

WILDFIRE DETECTION

Figure 1. FIRE DETECTION

DETECTOR	NUMBER OF FIRES	PERCENT
Lookout	32	25.4
FS Aircraft	69	54.8
Other Aircraft	4	3.1
FS Employee	16	12.7
Other	2	1.6
Permittee	0	0
Cooperator	3	2.4

The type of detection, number of fires located and percentage of the total number of fires detected is displayed in Figure 1.

Figure 2. NUMBER OF FIRES BY FIRE SUPPRESSION ZONE ON THE FOREST

DISTRICT	# OF FIRES BY SIZE CLASS						
	¼ or less Acres	.26-9.99 Acres	10-99.9 Acres	100-299.99 Acres	300--999 Acres	1000-4999 Acres	5000 + Acres
Palouse	6	2					
North Fork	27	18	1	1	1	2	
Lochsa	23		1				
Powell	33	5		4		2	

FIRE SUPPRESSION

The Clearwater National Forest is responsible for the protection of approximately 1,715,726 acres of land. The IDAHO DEPARTMENT OF LANDS and CPTPA protect about 146,136 acres of these lands. All eight of the fires that occurred on national forest lands protected by these two agencies were suppression strategy wildfires and are part of the total number of fires shown under the CONTROL SUPPRESSION STRATEGY section below.

Wildfires were attacked and suppressed in accordance with the ***Fire Management Action Plan***. The intent of the ***Clearwater National Forest Plan*** standards and guidelines were met by implementing an array of suppression strategies (often called the appropriate management response). Each fire was assessed as to its fire potential and location within each land allocation. A suppression strategy was assigned to best fit each fire situation.

CONTROL SUPPRESSION STRATEGY

An appropriate management response was used for each wildfire event. The majority of wildland fire events were aggressively attacked and suppressed. Wildfires that were not successfully suppressed received further analysis through the Wildland Fire Situation Analysis (WFSA) to determine the best course of action to meet land management objectives, including protecting resources.

- *There were 124 fires resulting in 12,336.35 acres burned.*

WILDLAND FIRE USE

This part of the Fire Management Program manages naturally ignited wildland fires to accomplish specific pre-stated resource management objectives in predefined geographic areas outlined in fire management plans. Each fire use event meets strict prescription criteria prior to line officer approval; and a site specific Wildland Fire Implementation Plan (WFIP) is developed.

- *This management option was selected for two fires, one within the Selway-Bitterroot Wilderness and one within the Clearwater Fire Management Unit. Each burned less than one acre.*
- *Numerous lightning ignitions did not meet wildfire use criteria, including National Preparedness Level V or VI, threats to boundary zones, lack of management personnel or resources, and high fire danger indexes.*

STATISTICAL CAUSE

Figure 3. NUMBER OF FIRES BY CAUSE – 2000

The Clearwater National Forest had six person/miscellaneous-caused fires that burned a total of 5,167 acres. Figure 3 displays the causes of fires for 2000.

Extensive support was provided by Clearwater National Forest employees on incidents in many parts of the nation with large amounts of time committed to Montana, Colorado, and New Mexico.

CAUSE	# FIRES	PERCENT	ACRES
Lightning	120	95.2	7,169.15
Equipment	2	1.6	5,167.00
Smoking	2	1.6	0.20
Campfire	2	1.6	0.20
Debris Burning	0	0	0.00
Children	0	0.0	0.00
Fireworks	0	0.0	0.00
Miscellaneous	0	0	0.00
Arson	0	0.0	0.00
TOTAL	126	100.0	12,336.55

The Forest utilized 92 smokejumpers on 21 fires. Retardant aircraft delivered 87,000 gallons of retardant to fires on the Clearwater National Forest during the 2000 fire season.

Within the Clearwater/Nez Perce Forest Fire Zone, helicopters flew a total of 1,275.9 hours, Twenty-four different helicopters were used, 1,743 personnel were transported, 224,577 pounds of cargo moved, and 1,956,153 gallons of water were dropped on fires. Clearwater Forest personnel to staff these aircraft provided extensive support.

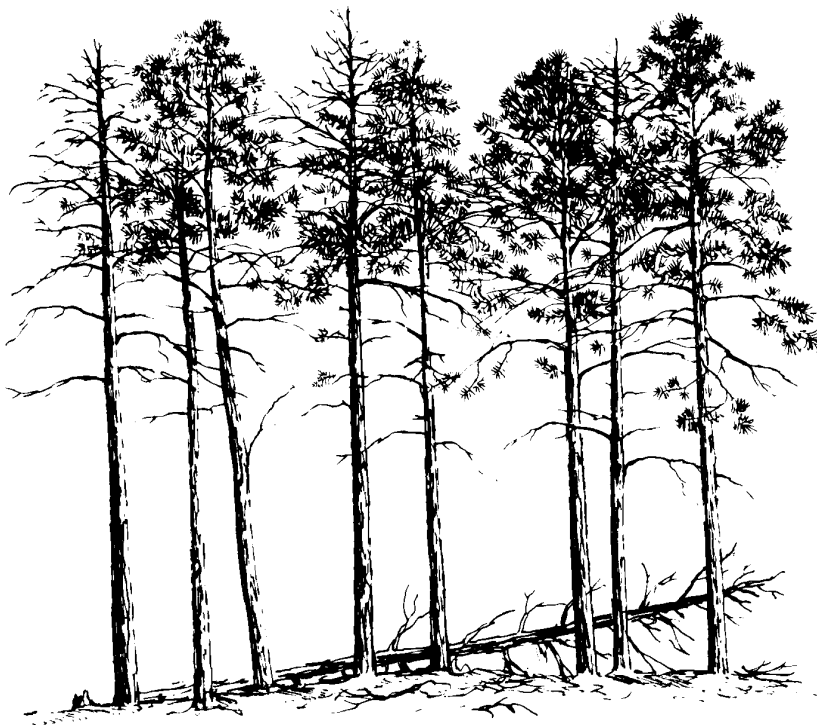
FUELS REDUCTION

Brush disposal trust funds were used to treat 942 acres following timber harvest activities. This treatment was 72% of a 1,300-acre target with a budget of \$325,000. A month long moratorium on prescribed burning was put in place following the Cerro Grande, New Mexico Incident. This reduced opportunities to prescribe burn during the spring. When the moratorium was lifted, fire danger indexes had reached the high to very high categories and the moderate risk burning window had been passed preventing the Forests from meeting the assigned target. Post brush disposal treatment monitoring indicated that fuel reduction objectives are being met.

Hazardous fuel treatment dollars in the amount of \$526,600 were used to treat 2,478 acres or 63% of the 5,608-acre target. The Roaring Creek prescribed burn was deferred, because the Snow Fire was immediately adjacent. Post-burn monitoring indicates that project objectives were met.

Prescribed fire is being planned and implemented to meet other resource objectives concurrent with hazardous fuels treatments. This includes the restoration of white-bark pine, and wildlife habitat improvement.

Planning for landscape scale burn projects continued for the North Lochsa Face and Middle-Black Environmental Impact Statements. Smaller hazardous fuel treatment project planning was also accomplished.



AIR QUALITY

Prescribed burning was accomplished during the spring and fall burning periods. Smoke management from prescribed fires was managed within the guidelines of the North Idaho Airshed Group. Significant program constraints occurred during October due to inversions and upon direction provided by the Airshed meteorologist. No specific air quality monitoring was done within the Forest.

FISHERIES

GOAL

Manage the Forest's fisheries streams to achieve optimum levels of fish production by rehabilitating and improving streams on developed areas of the Forest and by maintaining high quality existing habitat.

STRATEGY

Provide management direction during the planning and implementation of activities. Identify and implement rehabilitation projects on the Forest.

Emphasis in habitat improvement will be directed toward the sensitive species of bull trout, steelhead trout, westslope cutthroat trout and spring chinook salmon.

The Forest will focus the challenge cost-share program on anadromous fish habitat improvement associated with fisheries in the Columbia River Basin and the direction of the Northwest Power Act. The Forest will develop cost-share partners and projects.

The Forest fisheries biologist will direct development of fisheries expertise and monitoring across the Forest. Information regarding restoration and monitoring projects and the results are available for anyone interested.

The Forest will emphasize the implementation of the *Columbia River Basin Anadromous Fish Habitat Management Policy and Implementation Guide (PIG)* with priorities placed on monitoring, inventory and National Environmental Policy Act compliance. The purpose of PIG is to provide guidance for implementation of anadromous fish habitat management policy for the three Forest Service Regions with lands in the Columbia River Basin: the Northern, Pacific Northwest, and Intermountain Regions.

Ensure Forest activities meet the Forest Plan standards, especially PACFISH and INFISH standards that were included in a Forest Plan amendment.

Ensure Forest activities meet the terms and conditions as defined in the steelhead trout and bull trout biological opinions.

ACCOMPLISHMENTS/FINDINGS

PACFISH

No formal review by the PACFISH Implementation Review Team was conducted on the Forest in 2000. Since 1995, the Forest has been conducting the PACFISH/INFISH monitoring programs in conjunction with the annual Best Management Practices (BMP) reviews to determine project implementation compliance and effectiveness of resource protection measures on selected projects. In 2000, the Forest conducted reviews on two timber harvest units within the completed Coin Purse Timber Sale to determine compliance with Forest Plan direction as amended by PACFISH. The Forest is currently summarizing results from these reviews.

Additional project monitoring was scheduled in 2000, but the selected projects were not completed and the reviews are rescheduled for 2001.

INFISH

The Forest also completed a review of one road reconstruction project and several mining activities (suction dredging) within the North Fork Clearwater River drainage to determine compliance with Forest Plan direction as amended by INFISH. The Forest is currently summarizing results from these reviews. Similar to the PACFISH reviews, additional project monitoring was scheduled in 2000, but the selected projects were not completed and the reviews were rescheduled for 2001.

Item No. 8 Water Quality and Stream Condition for Fisheries and Non-Fisheries Beneficial Uses

Frequency of Measurement: Annual
Reporting Period: Annual

Information for Non-Fisheries is included in the section entitled "SOIL AND WATER" for Water Quality and Stream Condition for Non-Fisheries Beneficial Uses.

MONITORING ACTION

The Forest fisheries biologist will coordinate the monitoring of critical anadromous and inland fish streams to determine habitat conditions and population trends. District field crews will measure key habitat characteristics, such as cobble embeddedness (the degree to which streambed gravel has been infiltrated by sediment).

Streams supporting both anadromous and inland fish were monitored during 2000. The 1997 monitoring program was expanded and intensified to include more monitoring of anadromous and inland fish streams that were impacted as a result of the high flows, flooding and landslides within the Palouse River, Lochsa River and the North Fork Clearwater River drainages. However, monitoring efforts in 2000 were substantially decreased due to budget constraints.

ACCOMPLISHMENTS/FINDINGS

FOREST OVERVIEW

STREAM INVENTORY TARGETS – Due to budget constraints, only 4.5 miles of stream were inventoried. The inventories included the collection of stream channel, fish habitat and fish population information.

IMPROVEMENT TARGETS – Project targets focused on riparian protection regarding grazing and fish passage improvement projects. Five miles (29 acres) of fisheries habitat improvement were completed.

Stream improvement projects were completed on various streams throughout the Forest. Departing from previous years, watershed restoration projects (i.e. road obliteration) were not funded with fisheries funds. The new budget process only appropriated watershed and engineering funds for these projects. Riparian fencing projects involving fence replacement and maintenance were completed to meet Forest Plan Riparian Management Objectives (RMOs). Fisheries funds were used in several partnership projects to improve fish passage. Forest funds and funds from the National Fish and Wildlife Foundation were used to replace the West Fork Squaw Creek culvert and the Wendover Creek culvert. The Nez Perce Tribe also contributed funds to assist in the replacement of the Badger Creek culvert.

STREAM TEMPERATURE MONITORING - The stream temperature-monitoring program that was expanded in 1998-1999 to approximately 230 sites on various streams across the Forest was reduced in 2000 due to budget constraints. Stream water temperatures were measured at over 188 sites on 157 streams across the Forest. Dependent upon budgets, streams will be monitored for at least five consecutive years.

FISH POPULATION AND HABITAT MONITORING - Fish population numbers and/or stream substrate conditions were monitored in a few drainages in the Lochsa River and North Fork Clearwater River watersheds. Personnel from the Idaho Department of Fish and Game, Nez Perce Tribe, U.S. Fish and Wildlife Service, and Idaho Department of Health and Welfare - Division of Environmental Quality also monitored fish populations within various streams on the Forest; these monitoring projects were coordinated with the Forest programs to avoid unnecessary duplication of monitoring efforts.

Item No. 31 Anadromous Fisheries

Frequency of Measurement: Annual
Reporting Period: Annual

POTLATCH RIVER WATERSHED

WATERSHED STATUS - In 2000, a large landslide on private lands caused some unknown effects to the mainstem Potlatch River downstream of Little Boulder Creek. However, any effects to the fisheries habitat were downstream of national forest lands. No natural or anthropogenic events occurred in the Potlatch River watershed. Instream conditions and riparian conditions did not show any substantial changes due to climatic, spring stream flows, erosion, and management activities. Various field reviews and monitoring activities have supported the conclusion that the habitat conditions are most likely similar to 1998-1999 conditions. However, anadromous fish numbers may vary annually due to influences outside the watershed and fish supplementation efforts by the Nez Perce Tribe involving coho salmon.

HABITAT IMPROVEMENT (POTLATCH RIVER DRAINAGE) - The fisheries enhancement and riparian fencing projects within the Potlatch River drainage assisted in the improvement and/or protection of approximately four miles of stream. No major watershed restoration activities were scheduled in 2000.

RIPARIAN FENCE MAINTENANCE - Fences on ten permanent riparian enclosures (six along the East Fork Potlatch River, one on Ruby Creek, one on the East Fork Big Bear Creek, and two on ponds within the Corral Creek watershed) were maintained in 2000.

HABITAT MONITORING (POTLATCH RIVER DRAINAGE) - The mainstem Potlatch River and various tributaries have been designated a "water quality limited segment" (WQLS) by the State of Idaho. The primary pollutant of concern is sediment. Stream water temperatures are also a concern in the Potlatch River drainage. Past, current, and future monitoring within the drainage will emphasize substrate conditions in terms of sediment and stream water temperatures. Stream inventories of all fish-bearing streams within the Potlatch River drainage on national forest lands have been completed within the last several years; no additional surveys were scheduled for 2000.

WATER TEMPERATURE MONITORING (POTLATCH RIVER DRAINAGE) - Stream temperature monitoring was conducted at seven sites on five streams in the Potlatch River drainage in 2000 to evaluate habitat conditions for steelhead trout. Seven years of thermograph data indicate that most of the streams have summer stream temperatures that are higher than the desired objectives for salmonid rearing. In most years, all temperature sites within the Potlatch River system exceeded the desired future condition (DFC) for temperatures during the spring spawning period and all temperature sites within the Potlatch River system exceeded the State spawning standard of 13°C during the spring.

Comparison of the 2000 stream temperature data from the monitoring sites and the desired maximum temperatures as defined for the "*low fishable*" standard in the Forest Plan revealed that the mainstem Potlatch River (at Little Boulder Creek), and West Fork Potlatch River (downstream of Stout property) did not meet the DFC (less than 20°C) for steelhead trout rearing. Five of the seven sites, Potlatch River (upstream West Fork), West Fork Potlatch River (mouth), Moose Creek, Cougar Creek, and Feather Creek met the DFC for steelhead trout rearing.

In 2000, one site, mainstem Potlatch River (at Little Boulder Creek) exceeded the State standard for cold-water biota of the daily maximum of 22°C and the maximum daily average of 19°C. State temperature standard of 13°C or below for the spring spawning period (for steelhead trout) was not met at any of the seven sites. All streams exceeded the maximum rearing temperature of 10°C (consecutive 7-day average of daily maximums during June-September) that has been promulgated by EPA as a final rule for water quality standards.

FISH POPULATION MONITORING (POTLATCH RIVER DRAINAGE) - Steelhead redds have been monitored twice a year (April and May) in the East Fork Potlatch River since 1992. These surveys have shown a consistently low number of redds from three to eight. During the 2000 spawning period, one survey conducted in May did not find any redds.

LOLO CREEK WATERSHED

WATERSHED STATUS - No natural or anthropogenic events occurred in the Lolo Creek watershed during 2000 that caused changes to the aquatic environment. Instream conditions and riparian conditions did not show any substantial changes due to climatic, spring stream flows, erosion (sedimentation due to surface and mass wasting events), and management activities (i.e. roads, vegetative treatments, mining and grazing). Various field reviews and monitoring activities have supported the conclusion that the habitat conditions are most likely similar to the 1998-1999 conditions. However, anadromous fish numbers may vary annually due to

influences outside the watershed and fish supplementation efforts by the Nez Perce Tribe involving spring chinook salmon.

HABITAT IMPROVEMENT (LOLO CREEK DRAINAGE) - Restoration and enhancement work on aquatic resources were completed in 2000. The projects were primarily associated with watershed restoration activities such as road obliteration and road maintenance work.

RIPARIAN FENCING - Fence maintenance on existing riparian enclosures was completed in 2000.

HABITAT MONITORING (LOLO CREEK DRAINAGE) - The mainstream Lolo Creek and nine tributaries have been designated a WQLS by the State. The primary pollutants of concern are sediment and water temperature. Resurveys of specific streams are planned every five to ten years dependent upon stream conditions and management proposals. Due to funding, Eldorado Creek was not resurveyed.

WATER TEMPERATURE MONITORING (LOLO CREEK DRAINAGE) - A cooperative arrangement to monitor selected key tributaries within the Lolo Creek system was initiated in 1990 between the Nez Perce Tribe and the Lochsa Ranger District. In general, past monitoring data has indicated that stream temperatures in Lolo and Musselshell Creeks exceeded the desired criteria (16°-17°C) by several degrees and maintained these high temperatures for extended periods of time. However, the data shows that the number of days in which these systems exceeded the standard has decreased since 1990.

Stream temperatures were monitored throughout the summer at 11 sites on 10 streams within the Lolo Creek drainage to evaluate habitat conditions for steelhead trout, spring chinook salmon, westslope cutthroat trout and bull trout. The following data is for Lolo Creek tributaries operated by the Forest; data recorders operated by the Nez Perce Tribe (Camp Creek and Eldorado Creek at Six Bit Creek) have not been summarized. Comparison of the 2000 stream temperature data from the monitoring sites and the desired maximum temperatures as defined for appropriate standards in the Forest Plan revealed the following.

(1) The desired steelhead trout rearing temperature of 17°C was met at three streams: Dutchman Creek, Yoosa Creek, and Dan Lee Creek.

(2) The desired spring chinook trout rearing temperature of 17°C was not met at the current or potential spring chinook salmon streams (Yoosa Creek, Eldorado Creek and Musselshell Creek).

(3) The desired westslope cutthroat trout rearing temperature of 16°C was met only at Dan Lee Creek.

(4) The desired westslope cutthroat trout rearing temperature of 18°C or below (moderate fishable standard) was met in Gold Creek and Mud Creek.

Overall, water temperatures of streams within ten streams were under the State standard for cold-water biota; water temperatures did not exceed the daily maximum of 22°C and the maximum daily average of 19°C. The temperature data showed the mainstem Lolo Creek and lower Eldorado Creek exceeded the State cold-water biota standard. The State standard of 13°C for the spring spawning period (steelhead trout) was met only at Dan Lee Creek. However, Dutchman Creek exceeded the standard for only one day. All streams exceeded the maximum rearing temperature of 10°.

FISH POPULATION MONITORING (LOLO CREEK DRAINAGE) - For the last 11 years, population assessments were conducted via snorkeling to document trends in Lolo Creek; 15 permanent transects established in 1988 were sampled (10 log weir pools and 5 control sites). The Forest did not conduct any fish

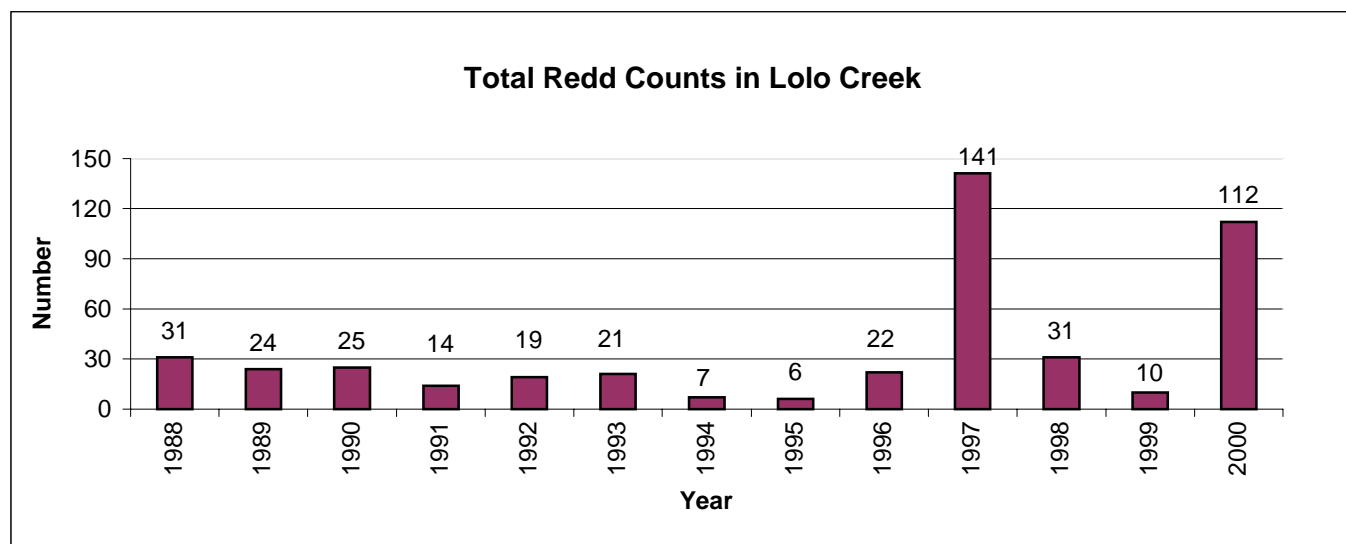
population monitoring in Lolo Creek drainage in FY00. However, since 1992, the Nez Perce Tribe has conducted fish population assessments in the mainstem of Lolo Creek and other tributaries such as Yoosa Creek, and Eldorado Creek. Data summaries are not available at this time.

As part of the continuing Idaho Supplemental Studies, the Nez Perce Tribal Fisheries Department completed the 2000 Lolo Creek spring chinook spawning ground surveys. These surveys were conducted in the mainstems of Lolo, Eldorado, Musselshell, and Yoosa Creeks.

Results of these surveys indicated that a total of 112 redds were located within the Lolo Creek drainage; 109 were located within mainstem Lolo Creek, two within lower Yoosa Creek and one within Eldorado Creek (Figure 1). No redds were observed in the Musselshell Creek drainage. The number of redds within the Lolo Creek drainage was about 79% of the 1997 redd count and much higher than the 1988-99 average of 29 redds. The primary reasons for the increase in the number of redds included:

- (1) *531 spring chinook adults from Dworshak National Fish Hatchery that were out planted in Lolo Creek during August 2000, and*
- (2) *to a lesser extent to natural returns from the high number of redds counted within the Lolo Creek drainage in 1997.*

Figure 1. Comparisons of spring chinook salmon redd counts observed within the Lolo Creek drainage during 1988-1999 (data provide by Idaho Department of Fish and Game (1988-89), U.S. Forest Service (1990-1991) and Nez Perce Tribe (1992-2000)).



OROFINO CREEK WATERSHED

WATERSHED STATUS - No natural or anthropogenic events occurred in drainages within the Orofino Creek watershed during 2000 that caused changes to the aquatic environment. Instream conditions and riparian conditions did not show any substantial changes due to climatic, spring stream flows, erosion and management activities. Various field reviews have supported the conclusion that the habitat conditions for most drainages are most likely similar to 1998-1999 conditions.

HABITAT MONITORING (OROFINO CREEK DRAINAGE) - Stream surveys that were scheduled for Orofino Creek in 2000 were not completed. Dependent upon funding, surveys will be rescheduled for 2002.

WATER TEMPERATURE MONITORING (OROFINO CREEK DRAINAGE) - Due to migration barriers in lower Orofino Creek, streams within the Forest's boundary are considered non-anadromous (no potential for steelhead trout or spring chinook salmon); only water quality and habitat conditions related to resident fish (i.e. westslope cutthroat trout) are monitored and analyzed. As in 1996-1999, Orofino Creek, at the Forest Service boundary, was monitored for summer stream temperatures in 2000. Comparison of the 2000 stream temperature data and the desired maximum temperatures as defined for the "*low fishable*" standard in the Forest Plan revealed that the desired cutthroat trout rearing temperature of 20°C or below was met. State standards for cold water biota were also achieved; water temperatures did not exceed the daily maximum of 22°C and the maximum daily average of 19°C. State standards of 13°C for the spring spawning periods (for westslope cutthroat trout) were not met at this monitoring site.

MIDDLE FORK CLEARWATER RIVER WATERSHED

WATERSHED STATUS - No natural or anthropogenic events occurred in drainages within the Middle Fork Clearwater River watershed during 2000 that caused changes to the aquatic environment. Instream conditions and riparian conditions did not show any substantial changes due to climatic, spring stream flows, erosion and management activities. No major fires occurred in this area. Various field reviews and monitoring activities have supported the conclusion that the habitat conditions for most drainages are most likely similar to 1998-1999 conditions. However, anadromous fish numbers may vary annually due to influences outside the watershed.

HABITAT MONITORING (MIDDLE FORK CLEARWATER RIVER DRAINAGE) - Stream inventories of all fish bearing streams within the Middle Fork Clearwater River drainage have been completed on national forest lands in 1996; no additional habitat surveys were scheduled for 2000.

WATER TEMPERATURE MONITORING (MIDDLE FORK CLEARWATER RIVER DRAINAGE) - Stream temperatures were monitored throughout the summer at the mouth of Big Smith Creek, Little Smith Creek and Swan Creek to evaluate habitat conditions for steelhead trout and westslope cutthroat trout. During 1997, the Forest started collecting water temperature data from these streams to determine temperature problems and prioritize riparian recovery efforts. Comparison of the 2000 stream temperature data from Big Smith Creek, Little Smith Creek and Swan Creek sites and the desired maximum temperatures as defined for the "*high fishable*" standard in the Forest Plan revealed that:

- (1) the desired steelhead trout rearing temperature of 17°C was only met at Little Smith Creek, and
- (2) the desired westslope cutthroat trout rearing temperature of 16°C was met only at Little Smith Creek.

All three streams are relatively small and do not contain any significant spring chinook rearing habitat.

Overall, water temperatures at the Big Smith Creek, Little Smith Creek and Swan Creek sites were under the State standard for cold-water biota; water temperatures did not exceed the daily maximum of 22°C and the maximum daily average of 19°C. The State standard of 13°C for the spring spawning periods for steelhead trout was not met at any stream, however temperatures in Little Smith Creek only exceeded the standard during three days. All three streams do not contain spring chinook spawning habitat. As for bull trout, none of the streams have been designated potential bull trout spawning habitat; all streams exceeded the maximum rearing temperature of 10°C.

LOCHSA RIVER WATERSHED

WATERSHED STATUS - With the exception of one area affected by fires (see below), instream conditions and riparian conditions did not show any substantial changes due to climatic, spring stream flows, erosion and management activities. Various field reviews and monitoring activities have supported the conclusion that the habitat conditions are most likely similar to 1998-1999. Monitoring efforts have shown some improvement and some decline in specific drainages that were impacted by the 1995/96 floods. Based on these assessments, the presence/absence and relative abundance of fish populations within the watershed are assumed similar to conditions observed in previous years. However, anadromous fish numbers may vary annually due to influences outside the watershed.

In 2000, numerous lightning-caused fires, including two larger fires in the wilderness area, occurred within the Lochsa River drainage. These natural fires are expected to have negligible changes to the aquatic resources within the Lochsa River subbasin. Some localized changes to aquatic conditions will most likely occur within the larger fire perimeters within the wilderness areas, but overall effects to aquatic species are considered minimal.

Two large person-caused fires occurred in the Upper Lochsa River watershed. One of these fires, Bear Camp Fire, was started in logging slash and burned 275 acres in the Parachute Creek drainage in the upper headwaters of Papoose Creek. Suppression efforts contained the Bear Camp fire to timber harvest area or previously harvested areas. Parachute Creek sustained little damage to bank stability or shading potential. The fire appeared to have swept through the riparian area quickly, leaving good amounts of grass and forbs vegetation adjacent to the stream banks. Only a few small areas have no vegetation left. The existing vegetation will provide root strength and will maintain bank stability.

The Crooked Fire burned 4,892 acres in the Crooked Fork Creek watershed. From July 28 to August 21, 2000, the Crooked Fire burned in various intensities along a 2.7-mile reach of Crooked Fork Creek within the Upper Lochsa River subbasin. The fire perimeter included the entire Rock Creek drainage and nearly 55% of the Haskell Creek drainage; these are the only two fish bearing tributaries of Crooked Fork Creek within the burn area. Burn acreage in the Haskell Creek and Rock Creek drainages were 1,748 acres (mostly low to moderate) and 1,343 acres (mostly moderate to high) respectively.

Recent fish population surveys have documented steelhead trout and bull trout (both threatened species under ESA) within the fire perimeter portion of Crooked Fork Creek. Spring chinook salmon and westslope cutthroat trout also spawn and rear in Crooked Fork Creek. Westslope cutthroat trout was the dominant salmonid documented in Rock and Haskell Creeks. However, bull trout were observed in lower Haskell Creek and steelhead trout have the potential to migrate upstream in either stream.

Impacts of the fire on the aquatic resources are expected to be fair to moderate in Rock Creek and the unnamed Crooked Fork tributary, and low in Haskell Creek. The BAER team conducted onsite reviews of the fire area during August 15-17 after the majority of the burning occurred within the fire perimeter. The fire burned within the riparian area (300 feet either side) throughout the Rock Creek and Haskell Creek drainages.

The majority of the burn areas within the riparian zone (especially within the Haskell Creek drainage) was of low intensity and appears to have minimal effects on riparian shade.

Riparian vegetation showed relatively higher impacts in the Rock Creek drainage and along the unnamed tributary west of Rock Creek. Immediate and long-term increases in large woody debris levels are expected in these streams. Due to the higher burn intensities within the Rock Creek and unnamed tributary drainages, higher amounts of fire-induced sediments are expected during next spring's runoff event (and possibly this fall dependent upon rainfall intensity).

Impacts of the fire on the aquatic resources along Crooked Fork Creek are expected to be minimal. The segment of Crooked Fork Creek from Shotgun Creek (upstream of the fire perimeter) to Haskell Creek was field reviewed on August 17, 2000 to assess any existing or potential impacts to Crooked Fork Creek. Within the fire perimeter, the burn area was within the riparian zone (300 feet) along the entire north stream bank. The burn area along the south stream bank was smaller in length and only affected the riparian zone in localized areas. Although most of the 2.7 miles of riparian zone was affected (at least along one stream bank), the fire only burned vegetation to the stream edge for approximately 700 feet (about 2% of the total riparian area). Impacts to streamside shade were mostly limited to these areas.

Increased levels of large woody debris due to fire and fire suppression actions were evident as over 30 trees were observed in the stream. Immediate and long-term increases in large woody debris levels are expected along Crooked Fork Creek, especially along the areas the fire burned within 100 feet of the stream. Benefits derived from the additional large woody debris are dependent on the size of the wood and the large hydraulic forces during spring runoff. Due to the large stream size and stream flows, effects of erosion along Crooked Fork Creek or within the tributaries are expected to be non-measurable.

HABITAT IMPROVEMENT (LOCHSA RIVER DRAINAGE) - Most work regarding the aquatic resources was focused on watershed restoration. Aquatic funds were used in several partnership projects regarding fish passage improvement. The Fish and Wildlife Foundation provided funds to replace a culvert on an important bull trout stream. The Foundation and the Nez Perce Tribe also provided funds to purchase culverts that the Idaho Transportation Department used to replaced two culverts on Highway 12. These activities improved access for adult anadromous and inland fish and allowed for unimpeded access for juvenile fish and other aquatic species to an additional nine miles of stream.

LOWER LOCHSA RIVER AREA - In 2000, no major watershed restoration activities were scheduled. Watershed restoration activities including substantial road obliteration and riparian planning projects are proposed under the North Lochsa Face Analysis.

UPPER LOCHSA RIVER AREA - In conjunction with the ongoing watershed restoration projects, the Forest concentrated fish enhancement efforts on three culvert replacement projects. Funded primarily by the National Fish and Wildlife Foundation, the West Fork Squaw Creek culvert was replaced with a bottomless arch culvert. The new culvert structure allows for adult and juvenile migrations of steelhead trout, bull trout and westslope cutthroat trout. Two culverts under Highway 12 were replaced. The Fish and Wildlife Foundation and the Nez Perce Tribe (as part of the their fish habitat improvement projects funded by the Bonneville Power Administration) provided funds to purchase the culverts for Wendover Creek and Badger Creek respectively. The culvert replacement at Wendover Creek improved access for adult and juvenile steelhead trout, bull trout and westslope cutthroat trout. The Badger Creek culvert replacement project re-opened the drainage for steelhead trout and bull trout migration.

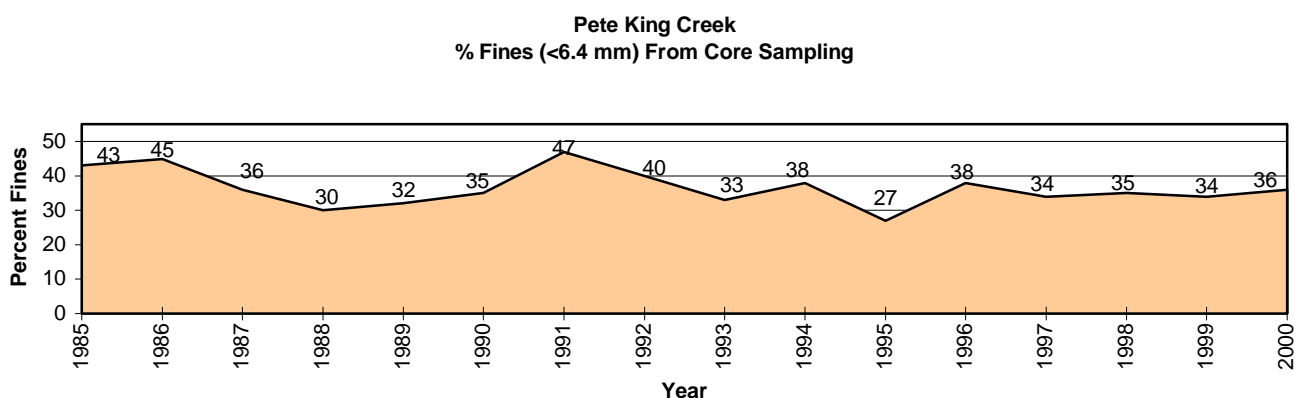
HABITAT MONITORING (LOCHSA RIVER DRAINAGE) - Stream inventories of all fish bearing streams within the Lochsa River drainage have been completed. Resurveys have been conducted on several streams (Pete King Creek, Deadman Creek and Walton Creek) in 1998-1999. No surveys were scheduled in 2000.

Due to the Crooked Fire in 2000, resurveys are scheduled for Rock Creek and Haskell Creek in 2001. In 2000, the Forest continued the substrate-monitoring project in the Pete King Creek and Deadman Creek drainages.

LOWER LOCHSA RIVER AREA – The Forest continued the substrate-monitoring project in Pete King and Deadman Creeks to determine trends of sediment (% fines by depth) in steelhead trout spawning areas. Preliminary analysis of the data indicates that the percentage of sediment (fine sediment < 6.4 mm) within the substrate of both streams have been ranging between 27% and 45% fines. After showing a decline in 1997, Pete King stabilized for the past three years (1999-2000) around 34-36% fines (Figure 2) Deadman Creek showed a declining trend in percent fines between 1996 and 1998, but showed the percent fines increasing substantially between 1999 and 2000 (Figure 3). At both streams, the levels are still above the desired conditions of 22%-24% for the "*high fishable*" Forest Plan standard.

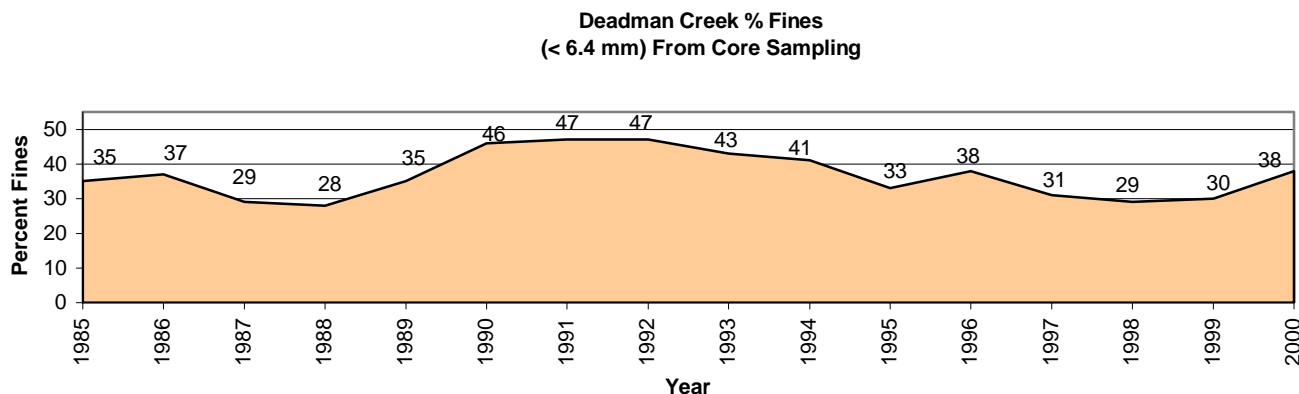
In Pete King Creek, the substrate conditions showed the percent fines increased slightly from 34% to 36% between 1999 and 2000 respectively. This increased level is most likely the result of excess sediment being transported through the system since no new sediment sources were identified during 2000. During the next ten years, barring any flood events, substrate conditions are expected to slowly decrease, but still maintain the moderately high levels of percent fines (30%-35%). Recent road obliteration and watershed restoration efforts reduced erosion potential in the upper drainages and reduced the probability of future increases in percent fines. Future road obliteration projects are expected to accelerate watershed recovery and improve substrate conditions.

Figure 2. Comparison of average percent fines (< 6.4 mm) for years 1985-2000 at permanent substrate monitoring sites in lower Pete King Creek within the Lochsa River drainage.



At the Deadman Creek stations, the substrate conditions showed the percent fines increasing substantially from 29.5% to 38.3% between 1999 and 2000 respectively. This 23% increase followed a leveling off during 1998 and 1999 and a decrease of 38% to 31% fines between 1996 and 1997. Comparison of the percent fines between two time periods, 1990-1994 and 1995-1999, showed that the decreasing trend over the last ten years was significant ($p < 0.05$). However, the increase in 2000 most likely shows that the decrease is temporary and that sediment impulses resulting from past anthropogenic activities are still present in the drainage.

Figure 3. Comparison of average percent fines (< 6.4 mm) for years 1985-2000 at permanent substrate monitoring sites in lower Deadman Creek within the Lochsa River drainage.



UPPER LOCHSA RIVER AREA – No substrate or fish population monitoring was conducted in 2000.

MAINSTEM LOCHSA RIVER – Habitat monitoring was rescheduled for 2001. Changes in substrate and pool conditions will be documented during surveys scheduled for 2001 and 2002.

WATER TEMPERATURE MONITORING (LOCHSA RIVER DRAINAGE) - Approximately 30 sites were not monitored in 2000 due to funding reductions. Stream temperatures were monitored throughout the summer at 78 sites on 63 streams within the Lochsa River drainage. Temperature units for ten sites were lost, data not processed or equipment failures prevented data collection. The Forest has been collecting water temperature data from 1990-2000 to determine temperature problems and prioritize riparian recovery efforts. In past years, thermograph data revealed that temperatures exceeding the desired rearing temperature criteria by several degrees were maintained for extended periods of time. Comparison of the 2000 stream temperature data with desired maximum temperatures as defined for the "high fishable" and "no effect" standard in the Forest Plan revealed the following.

(1) The desired steelhead trout rearing temperature of 15°C (no effect) was met at only one stream (Big Flat Creek) out of the ten streams monitored with a "no effect" standard.

(2) The desired steelhead trout rearing temperature of 17°C (high fishable) was met at 20 streams out of the 29 streams monitored with a "high fishable" standard.

(3) The desired spring chinook trout rearing temperature of 15°C (no effect) was not met at the three major streams with chinook habitat: Crooked Fork Creek, Brushy Fork Creek and White Sand Creek.

(4) The desired westslope cutthroat trout rearing temperature of 13°C (no effect) was not met at the three monitored sites (Storm Creek, Dan Creek and Fern Creek).

(5) The desired westslope cutthroat trout rearing temperature of 16°C (high fishable) was met at nine of the 13 streams monitored with a "high fishable" standard.

Overall, water temperatures of 55 of the 58 streams (with monitoring data) within the Lochsa River drainage were under the State standard for cold-water biota; water temperatures did not exceed the daily maximum of 22°C and the maximum daily average of 19°C. Pete King Creek, Fish Creek and White Sand Creek exceeded the State cold-water biota standard; the streams exceeded the standard for a short time period (Fish Creek exceeded the standard for three days, Pete King Creek and White Sand Creek for one day). The temperature data included the mainstem Lochsa River; monitoring data showed that water temperatures upstream to Eagle Mountain Creek exceeded the State cold-water biota standard and the Forest Plan's "no effect" standard for steelhead trout.

The State standard of 13°C for the spring spawning period (steelhead trout) was met at 29 streams. The State standard of 13°C for the spring period for westslope cutthroat trout was only met at one stream (Parachute Creek), although several streams exceeded the temperature for less than six days. All streams exceeded the maximum rearing temperature of 10°C.

FISHERIES POPULATION MONITORING (LOCHSA RIVER DRAINAGE - LOWER LOCHSA RIVER AREA) - No fish population monitoring was conducted in the Fish Creek and Hungery Creek drainage. Fish species present in some or all of the study streams included spring chinook salmon, steelhead/rainbow trout, westslope cutthroat trout, mountain whitefish and sculpin. No bull trout were observed during the surveys.

The 2000 data indicates steelhead trout populations within Pete King Creek have not rebounded to the desired densities of juveniles (age 1+) >15 fish/100m². Fish population data collected by the Forest and the USFWS showed densities of juvenile steelhead (age 1+) averaged about 5 fish/100m² in lower Pete King Creek. Low numbers of juvenile steelhead trout in Pete King Creek are most likely due to a two conditions:

- (1) *fair-poor habitat conditions have reduced potential spawning and rearing, and*
- (2) *low number of adult spawners due to downriver adult and juvenile escapement problems.*

Habitat conditions are expected to recover slowly until proposed watershed restoration activities are completed over the next ten years and vegetative recovery occurs in the riparian areas. Following watershed restoration projects, stream channels will need to undergo undetermined number of spring runoff events to reconfigure the stream channels to reflect more natural and stable conditions.

Fish population data collected in the Deadman Creek drainage indicated a substantial increase from 1999; steelhead trout densities rebounded in Deadman Creek to the early 1990s. The increase in Deadman Creek observed in 2000, followed a substantial increase between 1998-99. The improving trend follows a declining trend between 1993-1998 that showed densities dropping to a very low 1.2 fish/100m² in 1998. While higher stream flows during the summer months in 1997 may have contributed to the lower densities observed at the monitoring stations; stream flows during 1999 and 2000 were mostly average to below average, which tend to concentrate fish in smaller areas. In either case, most of the monitoring sites were established to have primarily pool habitat and a smaller portion of run habitat at the pool tailouts, which normally have the highest densities of steelhead (age 1+ and age 2+) especially during periods of low stream flows.

Similar to Pete King Creek, the numbers of juvenile steelhead trout in Deadman Creek are a function of habitat conditions and downstream passage. Habitat conditions are relatively better in Deadman Creek as compared to Pete King Creek. Habitat conditions within the Deadman Creek drainage may explain some of the increasing trend. However, the increase cannot be attributed to trends in the wild steelhead trout populations due to the lack of 2000 data for the long-term control drainages (Fish Creek and Hungery Creek).

Figure 4. Comparison of the average densities (#/100m²) of juvenile steelhead trout (age 1+) observed for survey period 1982-2000 permanent snorkeling stations on Pete King Creek in the Lochsa River drainage by the Clearwater National Forest.

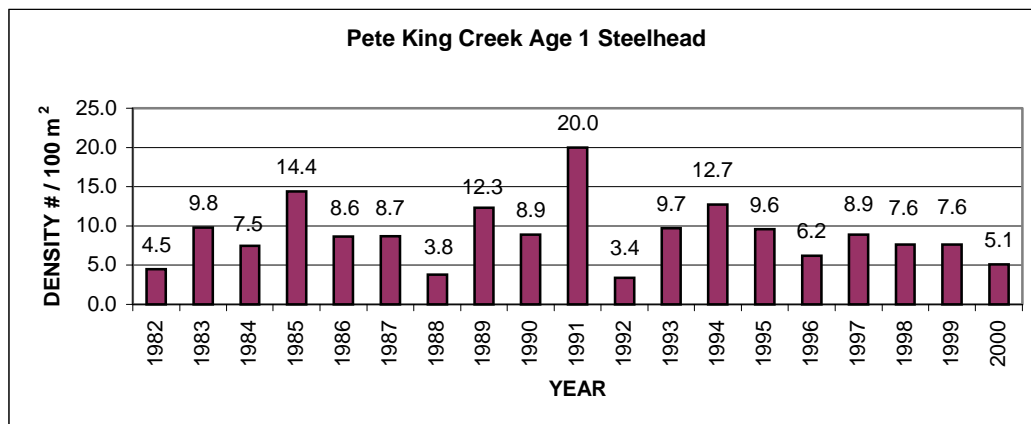
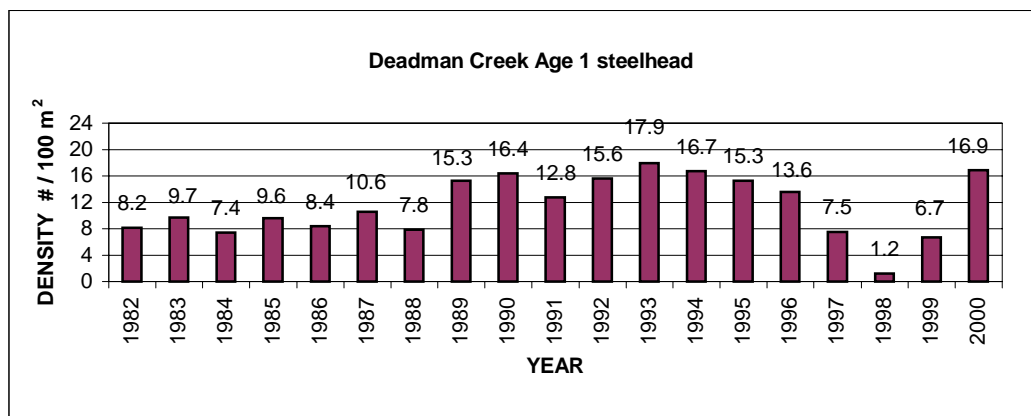


Figure 5. Comparison of the average densities (#/100m²) of juvenile steelhead trout (age 1+) observed for survey period 1982-2000 at permanent snorkeling stations on Deadman Creek in the Lochsa River drainage by the Clearwater National Forest.



As part of the continuing Idaho Supplemental Studies, the U.S. Fish and Wildlife Service completed the 2000 spring chinook spawning ground surveys in Pete King Creek. Two redds were located within lower Pete King Creek. Spring chinook spawning in Pete King Creek occurs infrequently as 0 redds were found during the 1992-1996, and the 1998-1999 survey period. One redd was documented during the 1997 spawning season.

UPPER LOCHSA RIVER AREA – Due to funding reductions, the Forest did not conduct any fish population monitoring (via snorkeling) in the Upper Lochsa River drainage during 2000 as done in previous years.

The Forest continued bull trout spawning ground surveys on selected streams within the Lochsa River drainage. Approximately 25 miles of stream was surveyed during the spawning period of September through early October 2000. Multiple surveys were conducted on some streams. Appropriate stream segments were selected in 12 streams in the upper Lochsa River drainage. The streams included: Squaw Creek, West Fork Squaw Creek, East Fork Squaw Creek, East Fork Papoose Creek, West Fork Papoose Creek, Crooked Fork Creek, Shotgun Creek, Boulder Creek, Fox Creek, Spruce Creek, South Fork Spruce Creek and Beaver Creek. Spawning was documented in 4 of the 12 streams.

As part of the continuing Idaho Supplemental Studies, the Nez Perce Tribal Fisheries Department completed the 2000 spring chinook spawning ground surveys in Papoose and Squaw Creeks. Results of these surveys indicated that spring chinook spawning were above average in Papoose Creek and below average in Squaw

Creek. A total of 37 and 2 redds were located within Papoose Creek and Squaw Creek respectively. This compares to an average of 13.9 redds/year in Papoose Creek and 3.8 redds/year in Squaw Creek during 1992-1999 survey period.

Figure 6. Number of spring chinook salmon redds observed by Nez Perce Tribe in Squaw Creek during 1992-2000 spawning season (provisional data, Nez Perce Tribe).

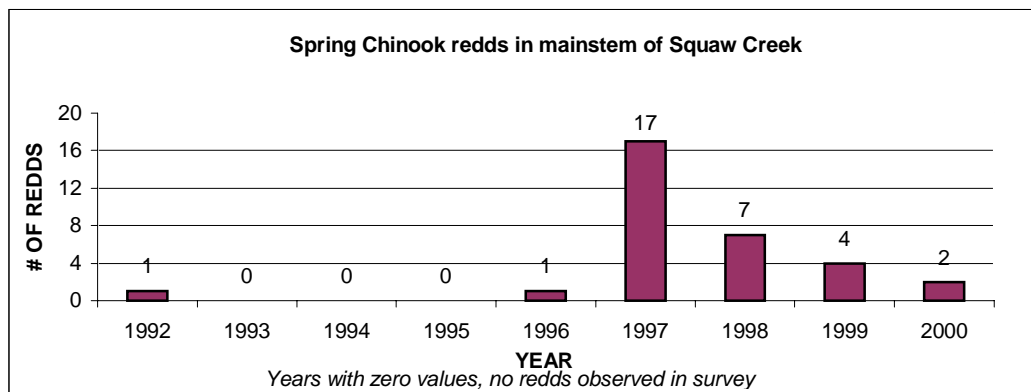
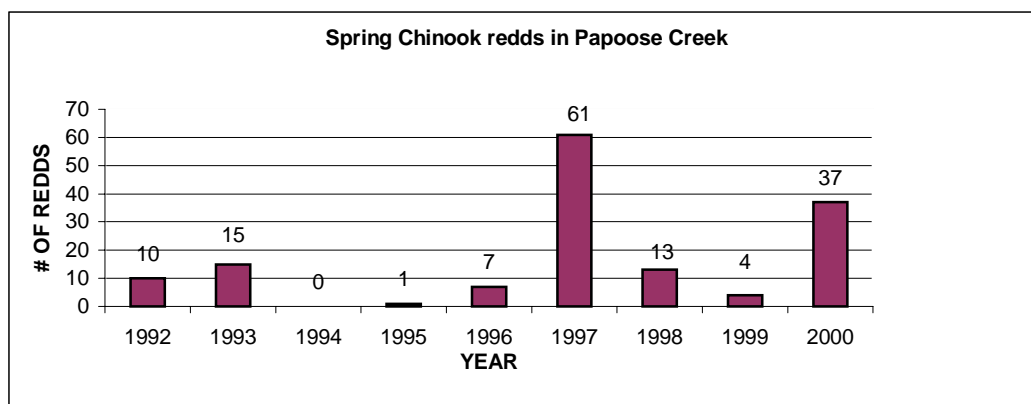


Figure 7. Number of spring chinook salmon redds observed by Nez Perce Tribe in Papoose Creek during 1992-2000 spawning season (provisional data, Nez Perce Tribe).



Item No. 32 Inland Fisheries

Frequency of Measurement: Annual
Reporting Period: Annual

NORTH FORK CLEARWATER RIVER WATERSHED

WATERSHED STATUS - In addition to numerous small fires, three major lightning-caused fires occurred in the North Fork Clearwater River watershed during 2000 that caused changes to the aquatic environment. The Snow Creek (1,037 acres), Collins (375 acres) and Elizabeth (3,293 acres) fires burned between August 4, 2000 and the fall rains in October within primarily roadless areas. Suppression efforts were minimal and conducted only to "herd" the fire and keep it within the roadless areas.

The Snow Creek and Elizabeth fires were field reviewed during September and October. All three wildfires exhibited mosaic burn patterns with the hottest burn areas located on ridges or dry slopes. Impacts of the reduce streamside cover and the resultant effects on stream temperatures during the summer months have not been quantified, but some increases in summer stream temperatures will most likely occur in the smaller tributaries. However, impacts to the main fish-bearing streams, such as Skull, Collins, Elizabeth, and Fix Creeks are expected to be minimal and non-measurable. Effects to the mainstem North Fork Clearwater River are most likely nonexistent. Sediment impacts to the fish-bearing streams should be relatively small and localized, and the impacts are expected to dissipate during high spring runoff.

Besides these three natural events, no additional natural or anthropogenic events occurred in the North Fork Clearwater River watershed during 2000 that caused changes to the aquatic environment. Instream conditions and riparian conditions did not show any substantial changes due to climatic, spring stream flows, erosion and management activities. Various field reviews and monitoring activities have supported the conclusion that the habitat conditions are most likely similar to 1998-1999 conditions. Based on these assessments, the presence/absence and relative abundance of fish populations within the watershed are assumed to be similar to conditions observed during various surveys throughout the 1990s.

HABITAT IMPROVEMENT - NORTH FORK CLEARWATER RIVER DRAINAGE

WATERSHED/HABITAT RESTORATION - The majority of activities within the North Fork Clearwater River drainage involved continued maintenance and rehabilitation of landslides and other erosive areas caused by the 1995/96 floods.

RIPARIAN FENCING - One temporary electric fence that was installed in 1996 around the sediment trap in the upper Elk Creek basin, was maintained in 2000. This provided protection of the riparian vegetation and maintained the integrity of the sediment trap from stream bank alterations.

HABITAT MONITORING - NORTH FORK CLEARWATER RIVER DRAINAGE

KELLY CREEK DRAINAGE – Surveys conducted in 2000 concentrated on the finishing tributaries within the Middle Fork Kelly Creek drainage. Approximately 4.5 miles of stream surveys, primarily in Kid Lake Creek and Frog Creek were completed in this roadless area. Results are not available at this time.

MAINSTEM NORTH FORK CLEARWATER RIVER – Habitat monitoring that was scheduled for the North Fork Clearwater River in 2000 was rescheduled for 2001. Changes in substrate and pool conditions will be documented during surveys scheduled for 2001 and 2002.

TEMPERATURE MONITORING - NORTH FORK CLEARWATER RIVER DRAINAGE

The Forest has been collecting water temperature data from 1992 to 2000 to determine temperature problems and prioritize riparian recovery efforts. Due to migration barriers at Dworshak Dam, streams within the Forest's boundary are considered non-anadromous; only water quality and habitat conditions related to resident fish were analyzed.

In 2000, stream temperatures were monitored at 88 sites on 75 streams within the North Fork Clearwater River drainage. Temperature units for 22 sites are not available (instruments still instream, data not processed or equipment failures prevented data collection). Stream temperature monitoring was initiated at other sites, but equipment failures prevented data collection. Comparison of the 2000 stream temperature data with the desired maximum temperatures as defined for the appropriate standards in the Forest Plan Forest Plan revealed that the desired westslope cutthroat trout rearing temperature of 13°C was not met at any of the five sites on mainstem North Fork Clearwater River. Other streams that are designated with a “*no effect*” standard, Collins Creek, Middle Fork Kelly Creek, South Fork Kelly Creek and North Fork Kelly Creek also did not meet the 13°C. Several other streams are currently being monitored, but the data recorders have not been retrieved for data download.

The desired westslope cutthroat trout rearing temperature of 16°C (high fishable) was met at 19 streams out of the 30 streams monitored with a “*high fishable*” standard. The desired westslope cutthroat trout rearing temperature of 18°C (moderate fishable) was met at five streams out of the six streams monitored with a “*moderate fishable*” standard. The desired westslope cutthroat trout rearing temperature of 20°C was met at 14 streams out of the 15 streams monitored with a “*low fishable*” standard. Orogrande Creek (at the mouth) exceeded the standard for six days. The desired brook trout rearing temperature of 17°C (high fishable) was not met at one stream, Elk Creek.

Overall, water temperatures for 55 of the 57 streams (with monitoring data) within the North Fork Clearwater River drainage were under the State standard for cold-water biota; water temperatures did not exceed the daily maximum of 22°C and the maximum daily average of 19°C. Orogrande Creek (at the mouth) exceeded the State cold-water biota standard for two days. Temperature data included the mainstem North Fork Clearwater River; monitoring data showed that water temperatures upstream to Weitas Creek exceeded the State cold-water biota standard. Temperature data of the mainstem North Fork Clearwater River at Kelly and Long Creeks met the State cold-water biota standard. The State standard of 13°C for the spring period for westslope cutthroat trout was met only in one stream, Laundry Creek.

Several streams exceeded the standard for five days or less: Cool Creek (5), Hemlock Creek (5), Larch Creek (5), Rocky Ridge Creek (4), Shake Creek (1), Martin Creek (3) and Fern Creek (5). All streams exceeded the maximum rearing temperature of 10°C.

FISH POPULATION MONITORING - NORTH FORK CLEARWATER RIVER DRAINAGE

Fish population monitoring stations were monitored via snorkeling at 13 sites throughout three streams in conjunction the IDF&G/USFS bull trout study. One adult bull trout was observed at one site in lower Moose Creek; no bull trout were found in Deadwood Creek or Independence Creek. As part of the study, IDFG also conducted fish population monitoring via snorkeling six sites in three streams (Moose Creek, Lake Creek and mainstem North Fork Clearwater River); bull trout were found at one Moose Creek site (downstream of Osier Creek) and the two Lake Creek sites.

Bull trout spawning surveys were conducted on 12 streams within the North Fork Clearwater River drainage. Approximately 25 miles of stream within the upper North Fork Clearwater River and Moose Creek drainages were surveyed by the Forest and IDFG during the spawning period of September through early October. Bull trout spawning was documented in 6 of the 12 streams. The surveys did find a major concentration of fluvial or adfluvial bull trout spawning activity in the Lake Creek drainage. Multiple surveys on these streams and other potential bull trout streams are scheduled for survey in 2001.

As part of their ongoing monitoring program, personnel from the IDF&G conducted fish population monitoring via snorkeling and creel census activities within the mainstem North Fork Clearwater River and selected tributaries. The IDF&G snorkeled 18 sites on eight streams.

NORTH FORK CLEARWATER RIVER BULL TROUT STUDIES - In 2000, the IDF&G and the Forest started a partnership project regarding bull trout studies within the North Fork Clearwater River subbasin. The three-year project is primarily composed of two separate studies:

- (1) to determine the movements of bull trout collected from Dworshak Reservoir, and*
- (2) to determine the life history aspects of the bull trout population within Fish Lake in the upper Lake Creek drainage.*

In 2000, the IDF&G marked and monitored movements of 21 adult bull trout. The Forest assisted in conducting fish population monitoring and spawning ground surveys. Genetic information from tissue samples from bull trout were processed and analyzed by the University of Idaho. For 2001, IDFG has expanded the partnership project to other agencies, including the Idaho Department of Lands and the U.S. Corps of Engineers.

PALOUSE RIVER DRAINAGE

WATERSHED STATUS - No natural or anthropogenic events occurred on national forest lands in the Palouse River watershed during 2000 that caused changes to the aquatic environment. Instream conditions and riparian conditions did not show any substantial changes due to climatic, spring stream flows, erosion and management activities. No major fires occurred in this area in 2000. The deciduous riparian vegetation that was totally defoliated by insects along various segments of the mainstem Palouse River in 1999, showed full recovery in 2000. Increased sediment loads from activities on private lands were observed in the mainstem of Palouse River at Laird Park (see WATERSHED section). However, any effects to the fisheries habitat were primarily downstream of national forest lands.

Various field reviews and monitoring activities have supported the conclusion that the habitat conditions for most drainages are most likely similar to 1998-1999 conditions. Monitoring efforts have shown some improvement and degradation in specific drainages that were impacted by the 1995/96 floods. Based on these assessments, the presence/absence and relative abundance of fish populations within the watershed are assumed similar to conditions observed during 1997-98 surveys.

HABITAT IMPROVEMENT (PALOUSE RIVER DRAINAGE) - No major watershed restoration activities were scheduled in 2000.

HABITAT MONITORING (PALOUSE RIVER DRAINAGE) - Stream inventories of all fish-bearing streams within the Palouse River drainage on national forest lands have been completed; no additional habitat surveys were scheduled for 2000.

Due to a pending land exchange in the Potlatch River drainage, the 1998 monitoring program dropped the Schwartz Creek site and added two other sites within the Palouse River drainage: Wepah Creek and Big Sand Creek.

The 1998 data reported by EcoAnalysts, Inc. showed that Wepah Creek, a moderately disturbed drainage, showed lower diversity and ecological integrity. Big Sand Creek, a highly disturbed drainage, showed the lowest macro-invertebrate diversity and ecological integrity. The report also noted while Big Sand Creek had

the lowest macro-invertebrate diversity and integrity, Big Sand Creek would rate relatively good when compared to an agricultural or urban stream. No sampling was contracted in the fall of 2000.

WATER TEMPERATURE MONITORING - PALOUSE RIVER DRAINAGE

Stream temperatures were monitored throughout the summer at eight sites on seven streams within the Palouse River drainage to evaluate habitat conditions for brook trout and rainbow trout. The upper Palouse River is not accessible to anadromous fish. In addition, bull trout and westslope cutthroat trout have not been observed in the upper Palouse River drainage. Comparison of the 2000 stream temperature data from the eight baseline sites and the desired maximum temperatures as defined for the "*low fishable*" standard in the Forest Plan revealed that the desired rainbow trout and brook trout rearing temperature of 20°C was met at six sites; the Meadow Creek site (downstream of Blakes Fork) and East Fork Meadow Creek exceeded the desired temperature. However, Meadow Creek only exceeded the desired temperature during two days.

Overall, water temperatures at all eight sites were under the State standard for cold-water biota; water temperatures did not exceed the daily maximum of 22°C and the maximum daily average of 19°C. The State standard of 13°C for the spring spawning periods for rainbow trout was not met at any site. Water temperatures were not recorded throughout the fall spawning period for brook trout. However, the stream temperatures are most likely below the State standard of 13°C.

FISH POPULATION MONITORING - PALOUSE RIVER DRAINAGE

Due to the absence of sensitive fish species (i.e. steelhead trout, westslope cutthroat trout, bull trout, spring chinook salmon), fish population monitoring is not scheduled on an annual basis within the Palouse River drainage; no monitoring was conducted in 2000.

LOCHSA RIVER AND NORTH FORK CLEARWATER RIVER DRAINAGES

HIGH MOUNTAIN LAKE SURVEYS - Between 1991 and 1999, the Idaho Department of Fish and Game and the Forest completed surveys on 230 high mountain lakes across the Forest. Although the goal of the cooperative project to inventory all high mountain lakes on the Forest was completed, the IDF&G and the Forest will complete additional monitoring of selected lakes during 2001-2003. Information acquired from the initial surveys and subsequent monitoring will be used in the evaluation of current fish stocking plans. In addition, a report will be completed by IDFG on amphibian distributions and the amphibian/trout relationships in the high mountain lakes.

WESTSLOPE CUTTHROAT TROUT AND BULL TROUT GENETIC STUDIES - In 1997, the Nez Perce Tribe initiated a study to assess genetic status of westslope cutthroat trout populations throughout the North Fork Clearwater River drainage; the field study was continued into 1998-1999. The Forest coordinated with the NezPerce Tribe and funded the genetic analysis of bull trout that was collected with the cutthroat trout. The Nez Perce Tribe will complete the final report in 2001.

HERITAGE PROGRAM

GOAL

Manage and interpret heritage resources in accordance with Federal laws and Forest Service direction. Ensure that Indian tribal rights, as retained in treaties and other agreements with the tribes, are protected. Manage the Lolo Trail system to protect heritage resource values while enhancing public use and awareness. Nominate significant heritage sites to the National Register of Historic Places.

STRATEGY

Examine and conduct inventories on all proposed project areas, document findings and provide direction for project implementation to ensure compliance with State and Federal regulations. Improve relations and develop working partnerships with the Nez Perce tribe to facilitate communication, consultation and cooperation. Identify and enhance resource values on the Lolo Trail system. Work with the public to improve values and increase awareness of heritage resources. Continue to assess heritage sites for nomination to the National Register of Historic Places.

Item No. 4 - Protection and Condition of Heritage Resource Sites

Frequency of Measurement: Annual
Reporting Period: Annual

MONITORING ACTION

Compare project effects to environmental analysis documents and project cultural resource reports to determine if projects have caused adverse effects on cultural resources. If this determination is made, necessary mitigation will be prescribed.

ACCOMPLISHMENTS/FINDINGS

A total of three projects/sites were monitored. All of these involved facilities construction while projects were in progress; no heritage values were observed.

Survey of the Lolo Trail National Historic Landmark across the Forest was completed in FY00. Over 80 sites were revisited and monitored, or newly recorded. The report is currently being prepared under contract and the results will be used to plan for the protection of heritage resources during the upcoming Lewis and Clark Bicentennial.

The National Historic Preservation Act directs federal agencies to consider the effects of their planned activities on heritage resources. In compliance with that law, the Forest surveys proposed projects such as timber sales, recreation facilities development and others to identify heritage resources and develop plans to protect significant sites during project implementation.

Table 1 shows the number of projects surveyed and the number of sites identified during the course of project planning in FY00. Results of these surveys are then coordinated through a consultation process with the Idaho State Historic Preservation Office and the Advisory Council on Historic Preservation.

Table 1. HERITAGE RESOURCE SURVEYS

YEAR	PROJECTS TESTED*	PROJECTS SURVEYED	ACRES SURVEYED (CLEARED)	NUMBER OF SITES IDENTIFIED
1988	4	27	9,435	36
1989	1	16	4,246	26
1990	0	30	2,747	21
1991	5	85	5,227	20
1992	14	62	6,496	19
1993	10	40	2,117	69
1994	4	41	3,886	52
1995	1	35	5,522	12
1996	5	46	3,947	20
1997	2	25	6,613	12
1998	6	31	2,300	5
1999	2	16	1,742	56
2000	2	49	1,232	14

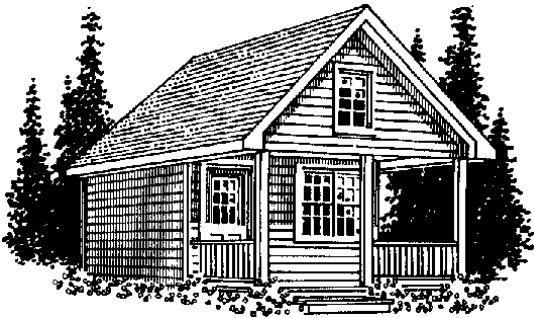
*Archaeological test excavations are conducted in areas within or near site locations, or on landforms that have a high probability of containing evidence of human activity. Tests indicate the absence, presence and/or amount of subsurface cultural material in project areas and help Forest officials decide where ground-disturbing developments may or may not take place.

PROGRAM HIGHLIGHTS

PASSPORT IN TIME (PIT) ♦ For one week in July, 2000, eight *Passport in Time* volunteers worked with the Forest archaeologists to record historic sites, archaeological sites, and culturally modified trees in Packer Meadows. Packer Meadows is largely within the Lolo Trail National Historic Landmark and has segments of the Lewis and Clark and Nee Me Poo trails passing through the area. The volunteer project helped record and document these sites. This information will be used to help manage these resources through the upcoming Lewis and Clark Bicentennial.

TAKE PRIDE IN THE CLEARWATER (TPIC) ♦ This program was cancelled last year due to lack of funding.

LANDS



Item No. 12 Land Ownership Adjustments

Frequency of Measurement: Annual
Reporting Period: Annual

MONITORING ACTION

The Forest Lands staff will prepare a report specifying the number of acres acquired, traded or sold. The report will contain the purpose of the land exchanges and how they contribute to the satisfaction of the Forest Plan objectives.

FINDINGS

During FY00, the Forest neared completion of the BEAVER/BUTTER N EGGS CLEANUP LAND EXCHANGE involving approximately 2,454 acres of Federal land and 2,261 acres of non-Federal land. All identified parcels are remnants of previous exchanges with Potlatch Corporation. The project is currently under appeal. If the decision is to proceed, completion is expected in March FY01.

The PITS EXCHANGE, involving approximately 3,132 acres of Federal land and approximately 3,172 acres of non-Federal lands, has been identified. All parcels have been cruised. Appraisal work (by Idaho Department of Lands appraiser) is scheduled for completion in late winter or early spring of 2001. The NEPA document will be prepared this summer and finalized late summer or fall depending on the progress of the appraisal. Anticipated closing is the summer of 2001.

The LAST CHANCE LAND EXCHANGE is being developed with Bennett Lumber Company and the State of Idaho Parks and Recreation Department. Federal lands involved are located near the McCroskey State Park on the Palouse Ranger District. Under this proposal Bennett Lumber Company would acquire Federal lands in the McCroskey State Park area in exchange for Bennett lands on the Palouse District. Immediately after closing and acquiring the Federal lands near McCroskey State Park, Bennett Lumber will complete an exchange with the State Parks and Recreation Department whereby the Parks and Recreation Department will acquire the newly acquired Bennett lands (formerly Federal lands) in exchange for some isolated Parks and Recreation Department land near Bennett inholdings. This project, if approved by the Regional and Washington Offices, is scheduled for cruising this summer, appraisal next fall, and NEPA work in 2002.

The BROWNS MEADOW LAND EXCHANGE involves Federal land on the Palouse Ranger District. Isolated Federal lands on the Palouse Ranger District would be exchanged to the State of Idaho Fish and Game Department for some State lands on the Salmon River. Subsequently, the Fish and Game will sell these parcels to the University of Idaho, as these isolated Federal parcels are located within the University of Idaho

Experimental Forest. All parcels have been cruised and appraised. Completion of this exchange is expected in December 2002.

The overall objective of these exchanges is to consolidate Federal ownership for more efficient and cost-effective land management. These exchanges were consistent with the management area objectives identified in the Forest Plan and the land adjustment criteria also within the Forest Plan.

Completion of these exchanges satisfied several objectives identified in the Forest Plan. Costs for surveying and posting boundary lines; acquiring access easements and constructing access to manage national forest land; acquiring/granting other use permits; and trespass will be reduced. Implementation of these exchanges contributed considerably to the management objectives and administrative efficiency of the Forest.

Over the past ten-year period, the Forest has been involved in nine land exchange cases. During that time, 34,287 acres have been acquired while 21,753 acres have been exchanged. Completion of these exchanges has saved the government in excess of \$1,000,000 through savings in administrative costs such as landline location, rights-of-acquisition, and trespass cases.

MINERALS

GOAL

Encourage and facilitate the orderly exploration, development and production of the energy and mineral resources on the Clearwater National Forest. Ensure that this exploration, development and production are conducted in an environmentally sound manner.



STRATEGY

Process all notices of intent, operating plans, exploration permits and lease applications in a timely manner. Monitor to ensure compliance with State and Federal regulations. Develop adequate reclamation plans to return disturbed land to other productive uses, and monitor to ensure that reclamation is performed to specified standards. Maintain close coordination with local mining groups as well as applicable State and Federal agencies.

Item No. 15 – Minerals Prospecting and Development

Frequency of Measurement: Annual
Reporting Period: Five Years

MONITORING ACTION

The Forest geologist will prepare a report detailing the status of the minerals program. The report will be based on a review of all projects and mining activities that may have an effect on minerals management. The number of case files, status of case files, estimated quantity and value of mineral production will be evaluated.

ACCOMPLISHMENTS/FINDINGS

OPERATIONS

A total of 107 operations were processed on the Forest during FY00. Of these, 90 were non-bonded, non-energy operations; 17 were bonded non-energy operations. All 17 bonded non-energy operations were administered to standard.

In FY96, the Washington Office issued new definitions for accomplishment indicators. Due to the difference in definitions of accomplishment, the 265 average annual number of cases predicted in the Forest Plan should not be compared to the 107 total operations processed and administered during FY00.

During the summer of 1998, bull trout were listed as a threatened species. In order to comply with section 7(d) of the Endangered Species Act, decisions for four proposals for FY00 have been postponed until the consultation with USF&WS is complete. The consultation process was not completed during FY00.

LOCATABLE MINERALS

The only significant locatable mineral mined from the Forest is gold. Miners are not required to report their production to the Forest Service. However, the Forest minerals geologist has estimated that approximately 153 ounces of gold were mined from the Forest during FY00. The value of this amount of gold would be approximately \$45,900 at an average gold price of \$300/oz.

COMMON VARIETY MINERALS

The Forest provides mineral materials for road surfacing to county and state agencies, for national forest roads and for use in private industry. Forest records show that 7,400 tons of materials were produced from national forest lands in FY00 with an estimated value of \$1,850.

MONITORING

All active earth-disturbing minerals activities and suction dredge mining were monitored for compliance with operating plans, Forest Plan standards, and State and Federal regulations. No impacts on mining activities from other resources were identified.

Item No. 36 - Minerals Resource Availability

Frequency of Measurement: Annual
Reporting Period: Five Years

MONITORING ACTION

The Forest geologist will prepare a report on the probable effect of renewable resource prescriptions and management direction on mineral resources and activities, including exploration and development. Denial of proposed mineral activities and changes in land status affecting mineral availability will be documented. Examples include designation as wilderness or recommended wilderness, legislation such as the Threatened and Endangered Species Act, executive orders, and special resource stipulations or management direction. Changes in land status or restrictions on minerals availability; exploration and development will be documented.

ACCOMPLISHMENTS/FINDINGS

The Clearwater National Forest consists of a total of 1,825,318 acres. Of these acres, 259,167 (approximately 14%) are in the Clearwater portion of the Selway-Bitterroot Wilderness and are withdrawn from mineral entry. In addition to wilderness, the Forest currently has 52 individual sites withdrawn from mineral entry. This figure has remained the same since FY94.



RANGE

GOAL

Manage livestock grazing land consistent with the protection and management of other resources.



STRATEGY

Complete range environmental studies analyzing present management. Prepare allotment management plans for all active allotments. (An allotment is an area of land where one or more individuals graze livestock.)

Item No. 6 – Livestock Forage Available, Range in Good Condition Per Established Allotments

Frequency of Measurement: Annual
Reporting Period: Five Years

MONITORING ACTION

Forest range personnel will annually monitor each grazing allotment for use, condition of range, forage availability and protection of other resources. Data will be entered into the **INFRASTRUCTURE** database generating one source of information about the Clearwater National Forest Range Program.

ACCOMPLISHMENTS/FINDINGS

Range allotments are routinely monitored for use, possible resource damage and maintenance needs. Current range conditions overall are good. There are 17 active cattle allotments on the Forest (14 on the Palouse Ranger District and 3 on the Lochsa Ranger District) that have 35 individual permittees. There are 1,466 cattle and 416 horses permitted to graze on the Forest. This amounted to approximately 9,700 animal unit months (AUMs) in FY00. An AUM is the amount of forage needed to sustain one cow, five sheep, or five goats for a month. These numbers reflect the permitted animals on cattle allotments and Outfitter and Guide Permits and do not include animals associated with recreational visitors.

No range environmental studies were completed in FY00.

A physical inventory of range improvements was completed for all allotments on the Forest this year. Deferred maintenance of range improvements has been completed on two-thirds of the allotments this year with the remainder to be completed in 2001.

Noxious weeds were controlled on approximately 1,400 acres. Certain areas were treated along the Lower Lochsa River corridor, the North Fork corridor, Cayuse Air Field and the Palouse Ranger District.

RECREATION

GOAL

Provide a range of quality outdoor recreation opportunities within a forest environment that will meet the public needs now and in the future. Provide opportunities for a broad spectrum of dispersed activities and developed facilities.

STRATEGY

The Clearwater National Forest has developed several strategies to meet Forest Plan goals in recreation. These strategies can be summarized as follows.

IDENTIFY RECREATION AREAS

The Forest has been divided into six areas of similar recreation opportunities, use patterns and user needs. Planning within these areas will attempt to provide a range of recreation opportunities within constraints set by the land base and other uses.

RECONSTRUCT EXISTING RECREATION FACILITIES TO STANDARDS APPROPRIATE

Facilities at all sites will be reconstructed to meet the needs of people with physical disabilities as funding allows and where topography allows.

PROVIDE FOR CONSTRUCTION OF NEW RECREATION FACILITIES

Add new facilities to complement existing facilities such as interpretive trails near picnic areas as use dictates and funding allows. Facilities at all sites will be constructed to meet the needs of people with physical disabilities within the constraints of a site's topography.

CONTINUE TO REQUEST FUNDING

Funding is needed to operate, maintain and reconstruct sites to full service standards.

Item No. 2 Wide Spectrum of Recreation Opportunities

Frequency of Measurement: Annual
Reporting Period: Five Years

MONITORING ACTION

The Forest recreation staff will monitor recreation opportunities. Monitoring and evaluation will:

- 1) compare recreation use on the Forest with the broad range of opportunities that could occur and are supported in the Forest Plan,*
- 2) identify changes or conflicts in existing recreation use, and*
- 3) identify directions for changes and alternatives for conflict resolution.*

ACCOMPLISHMENTS/FINDINGS

INTRODUCTORY NOTE

Systematic sampling of recreation use of the National Forest System was begun in FY00. Sampling of use on the Clearwater National Forest will be conducted in FY01. The sampling program will be completed in FY03 for the entire national forest system. Recreation use estimates provided for FY00 and before were arrived at primarily by observation and are useful for indicating trends in use. Use estimates for developed recreation sites reflect more closely actual use since they are based on fees paid and information provided by visitors at points of visitor contact such as visitor centers.

In monitoring reports for 1999 and earlier, recreation funding was shown in the ECONOMICS section, Table 1. RECREATION FUNDING, USE AND FEES. This table is not comparable for different years. See the ECONOMICS section, Table 2. COMPARISON BETWEEN YEARLY EXPENDITURES (IN THOUSANDS \$) AND FOREST PLAN PROJECTIONS (IN 1999 DOLLARS) for information about recreation and trails budgets that is comparable between years.

GENERAL FOREST AREA USE

While the population of Idaho has increased over 20% in the decade, recreation use appeared to be stable or down slightly in FY00. Several factors likely influenced visitation in 2000. The price of gasoline increased substantially and may have deterred recreation travel. Recreational vehicle use particularly appears to be impacted by increases in fuel prices. Also, the Clearwater National Forest had several road closures which impacted access to developed and dispersed recreation sites. In 2000, the high incidence of wild fires apparently discouraged recreation travel in the west.

Inquiries regarding the route of Lewis and Clark crossing the Clearwater National Forest continued to increase in number during FY00.

No change in whitewater rafting use on the North Fork appeared to occur. Information regarding boating use on the Lochsa River is located in the WILD AND SCENIC RIVERS section.

Weekends during late July and August received intense recreation patrols at all developed and dispersed sites on the Clearwater National Forest. Many recreation employees as well as employees in many other disciplines participated in these patrols. While patrols initially focused on providing information regarding fire closures and wildfire updates, the recreation program had the added benefit of providing visitors with a variety of recreation related information. Forest visitors received answers to questions regarding OHV use, hiking, low impact camping, recreation sites, wildlife viewing, general forest use, swimming and fishing holes and many other topics. This presented an opportunity to inform visitors of Forest Service management and to have contact with visitors that normally would not see a Forest Service employee.

DEVELOPED AREA USE

Fees collected in FY00 increased about 10% at developed campgrounds. The only measurement of recreation use on the Clearwater National Forest for FY00 and prior years is the number of visitors indicated on fee envelopes at fee sites. The number of visitors to campgrounds, indicated on fee envelopes, totaled 26,400. This is the actual number of visitors to the campgrounds.

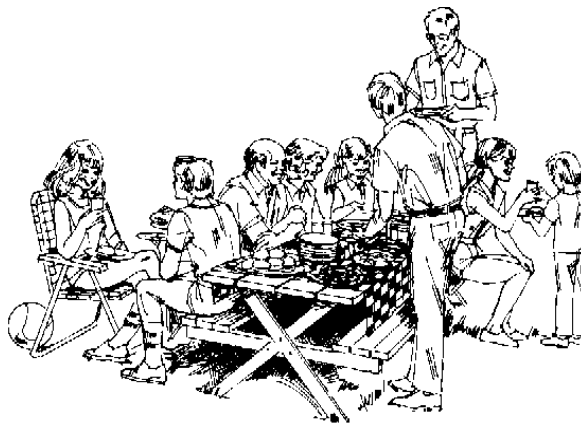
A rough estimate of visitor days (the number of visitors multiplied by the number of days visited; an average of 2.5 days per visitor) is 66,000 visitor days in developed sites. There is obviously more recreation use on the Forest that is not measured. Total visitor use is a scientific guess.

In FY00, recreation visitor use decreased somewhat from road closures due to wild fires. Despite this, fee collections did increase. Fee compliance checks increased in 2000 under the Fee Demonstration Program and may have affected the amount of fees collected. Campground fees collected on the North Fork Ranger District rebounded in 2000 to the level they were at prior to the beginning of campground reconstruction activity. With a better tracking system of campground fees now in place, it is expected that more accurate trends for fee sites can be assessed for the future.

RECREATION USE

RECREATION USE AND FEES COLLECTED*	FY96	FY97	FY98	FY99	FY00
Recreation Use (M Visitor Days)	1158	1681	1808	1600	1328
Fees Collected	\$63,330	\$85,572	\$96,763	\$85,907	\$95,347
Recreation Use Change from Previous Year (%)	+0%	+35%	+13%	-11%	-17%

*Figures for 1994, 1995, and 1996 are estimates. The use estimate reported for 1997 was drawn from the INFRASTRUCTURE system which uses estimates differing from that used in previous years. This method resulted in a skewed estimate of use and indicated a trend of rapid growth in use that did not actually occur. Estimate of use for FY00 is the figure reported from Table 1 in the ECONOMICS section and reflects the overall trend in recreation



RECREATION FACILITY IMPROVEMENT

Emphasis continues to be placed on improving existing campground facilities. These improvements include upgrading or replacement of aging water systems, improving access to recreation facilities for the disabled, and improving parking to accommodate a variety of users. Over the last ten years, the Forest has completed improvements of campground facilities in the U.S. Highway 12 corridor, the North Fork Clearwater corridor, and in the Palouse Ranger District. The Forest is approaching completion of the rehabilitation of developed campgrounds and will begin focusing on planning for facilities expected to be in demand during the Lewis and Clark Bicentennial.

The following is a list of projects in FY00:

- *Reconstruction of the historic Kelly Forks log cabin was continued in 2000 by force account and volunteer labor. Work included installation of flooring, stripping of the interior walls, repairs to the crown ends of sill logs, installation of portions of the interior wall paneling and repainting and re-glazing of windows. Work will be continued on the cabin in 2001 with a \$1500 grant from the Idaho Heritage Trust and a like amount of appropriated funds. Work will include treatment to control ants, continued work on wall restoration and possible construction of replicated furniture as funds permit.*

RECREATION SPECIAL EFFORTS

PARTNERSHIPS

Partnerships continue to be important to the success of the Forest's recreation program. In FY00, as in previous years, partners contributed a significant amount of labor and funding to improve recreational facilities, and help meet Forest visitor expectations by providing interpretive and "Good Host" programs.

NOXIOUS WEED CONTROL

The Clearwater National Forest and the Idaho Transportation Department (ITD) coordinate noxious weed treatment in the Highway 12 corridor from Kooskia to Lolo Pass. For the second year, the ITD was able to treat noxious weeds in the highway right-of-way from Kooskia to Lolo Pass. The Lochsa Ranger District, with assistance from the Moose Creek Ranger District, treated weeds from Tukaytespe to White Sands campground at administrative sites including campgrounds, trailheads and river access sites. The Powell compound was treated for the first time in 2000.

Treatment is aimed at reducing noxious weed occurrence and invasion. Treatments included pulling, burning, introducing biological controls, and herbicide application. Grass seeding in treatment areas helps to out-compete new weed starts. Monitoring has shown that most of the sites treated are exhibiting significant decline in the area of noxious weed infestation. After a site has been treated for several years, weed proliferation appears to be reduced and treatment can then be less intensive. New sites have been identified for future treatment as sites treated for several years enter a maintenance stage.

Tansy ragwort was found in a new location near Split Creek. This infestation will be specifically targeted for treatment in 2001. Developed sites along the North Fork Clearwater River and elsewhere on the Forest were also treated to reduce the spread of noxious weeds.

FEE DEMONSTRATION PROGRAM

Revenue from the fee demonstration program continued to play a vital role in providing valued added products and services to Forest visitors. Fee demo receipts were used to reimburse volunteer campground hosts expenses. Several temporary employees were hired to provide additional visitor contact and campground host support. Toilets were cleaned more frequently and garbage was removed from sites more often. Campground maintenance such as grass and weed mowing continued where these activities would have been curtailed without employees funded with monies collected under the fee demonstration program.

Specific projects were accomplished across the Forest using fee demo funds. An Idaho RV Grant was matched by \$6,000 of fee demo funds to install four toilets, to improve drainage, and to replace tables, fire rings, bulletin boards and parking bumpers at the White Pine campground. A wooden rail fence was constructed at the Little Boulder campground to prevent cattle from grazing in the campground. Another Idaho RV Grant was matched by \$35,000 in fee demo funds to construct a shower facility at the Powell campground. This construction will occur in 2001. Without the ability to leverage fee demo funds with Idaho RV Grant funds, significant projects could not be completed or would only be able to be completed at a much smaller scale, not meeting the needs of the recreating public.

The Lolo Pass winter operation was funded with the fee demonstration funds collected on site. Funds provided grooming of eight miles of cross-country ski trails, parking lot plowing, snowmobile trail grooming and new sign installations. During winter operation at Lolo Pass, a compliance/information officer was on-site 75% of the time. Weekly avalanche testing and reporting occurred with the help of a contribution of fee demo funds.

Item No. 14 - Off Highway Vehicle Use Impacts

Frequency of Measurement: Annual
Reporting Period: Five Years

MONITORING ACTION

The Forest recreation staff will prepare a report displaying the effects of off highway vehicles (OHVs) on Clearwater National Forest resources. Monitored items include complaints and conflicts between user groups, impacts to trails from motorized use, snowmobile activity in the Great Burn recommended wilderness and in the Selway-Bitterroot Wilderness, changes in trail and campsite conditions at Fish Lake, citations for violations of closure regulations, and resource damage occurring on the Forest.

ACCOMPLISHMENTS/FINDINGS

Observation of recreation activity on the Forest indicates that use of OHVs continued to increase in FY00. OHVs are routinely observed on most Forest roads open to their use throughout the snow free season. Although most use occurs on roads, a significant amount of OHV use on trails and off roads has been observed.

Limited aerial monitoring of snowmobile use in the Great Burn roadless area and in boundary areas of the Selway-Bitterroot Wilderness in the Powell area was initiated in 1999 and continued in 2000. This monitoring resulted in confirmation that some snowmobile use is occurring in the Great Burn area, both on the Idaho side of the State boundary and on the Montana side where snowmobile use is prohibited. Illegal snowmobile use in the border areas of the Selway-Bitterroot Wilderness was also observed during these surveys. This monitoring effort has not been conducted long enough, or often enough to quantify the amount of use occurring, or to determine trends in illegal snow machine activity.

Resource damage to trails and other resources resulting from motorized use is still considered to be minimal and relatively easily corrected though concerns over the effects of OHV use are increasing, particularly on the Palouse Ranger District. Forest Service and adjacent landowners in the Palouse area have held a series of meetings during FY00 to discuss the effects of OHV use and management actions that might be taken in response to common concerns. These discussions have not reached a conclusion.

In FY00, formalized monitoring of the effects of OHV activity on dispersed campsites at Fish Lake on the North Fork Ranger District was begun with the inventory of the location, number and physical condition of campsites at the lake, and recording of observations of condition of the trail to the lake. These measurements and observations will be conducted annually to determine if trail and campsite conditions are changing over time.

Also in FY00, complaints and conflicts between user groups and citations for violations of regulations continued to increase from previous years. Motorized use and conflicts are most prevalent on the Palouse and North Fork Ranger Districts. The number of complaints regarding motorized access to Fish Lake on the North Fork District increased and culminated in the filing of a law suit by three entities who contend that permitting vehicles over forty inches in width on Forest trails violates direction in the Forest Plan. The suit has not been resolved at this time.

Instances of reported conflict are still related primarily to the objection of non-motorized visitors to the presence of motorized users on the Forest. Instances of unauthorized construction of trails to permit use of OHVs are still occurring occasionally throughout the Forest. These have been limited to removing down trees and small vegetation to allow passage of small OHVs, commonly referred to as "*4 wheelers*". The effects of these unauthorized activities have been limited to minor ground and vegetation disturbance with short-term effects. There have been no cases where action was necessary to correct resource damage from unauthorized use of OHVs other than action to stop the use.

MONITORING ITEMS

In 1998, monitoring of the following items was initiated and continues to obtain a relative index of the amount of activity and conflicts related to OHV use.

NUMBER OF REPORTED COMPLAINTS RELATING TO USE OF OHVS, OR INSTANCES OF CONFLICT BETWEEN USER GROUPS

An informal survey of office receptionists and recreation managers on the Clearwater National Forest indicated that the frequency of complaints regarding use of OHVs continued to increase. The number of complaints received was in the order of 10-20 with the exception of complaints regarding motorized access to Fish Lake.

A number of complaints regarding motorized access to Fish Lake on the North Fork Ranger District were received. These complaints prompted increased monitoring of activity and plans to involve users in preparation of a plan that will guide management of use in the Fish Lake area to reduce undesirable effects and keep future impacts within defined limits.

NUMBER OF CITATIONS FOR VIOLATIONS OF REGULATIONS RELATING TO USE OF OHVS

In FY00, there were 190 incident reports, warning notices, or violation notices issued for violations of regulations.

LAW ENFORCEMENT STATISTICS RELATING TO OHV USE*	FY96	FY97	FY98	FY99	FY00
OHV Road Closure Violation Citations	4	1	0	8	2
OHV Trail Closure Violation Citations	0	1	0	0	0
Unauthorized Trail Building Citations	0	0	2	0	0
Incident Reports of Violations Related to OHV Use	69	48	116	137	188
Damaging a Natural Feature				1	0
TOTAL	73	50	118	146	190

* Source of information is LEMARS law enforcement statistical report.

Statistics presented in the above table indicate the continued increase in use of OHVs on the Clearwater National Forest. While the number of incidents of violations of regulations by OHV users has risen commensurately with the amount of use, the number of instances of resource damage attributable to OHV use has not risen. Most conflicts associated with use of OHVs are still related to use on roads or trails where use is restricted by regulation, or are social conflicts between motorized and non-motorized users.



RESEARCH NATURAL AREAS

GOAL

Identify and manage unique and/or outstanding botanical, geological and historical areas of the Forest for public enjoyment and use.

MONITORING ACTION

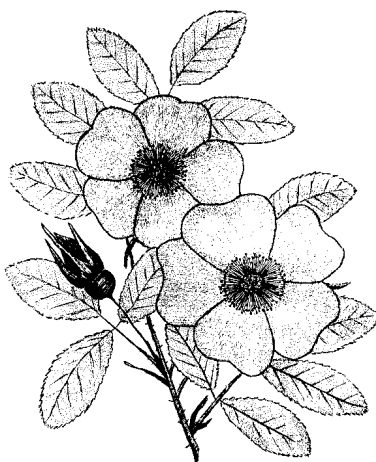
Establish a sufficient number of Research Natural Areas (RNA) on the Forest. Each should include at least two or three examples of major habitats and at least one example of a minor habitat. Major habitats are widespread, whereas minor habitats are unique, with little occurrence on the Forest.



ACCOMPLISHMENTS/FINDINGS

There are twelve RNAs identified in the Forest Plan on the Clearwater National Forest. The Lochsa River RNA was officially designated before the release of the Forest Plan in September 1987. Since then, nine additional RNAs have been designated.

AQUARIUS	CHATEAU FALLS	GRAVE PEAK
BALD MOUNTAIN	DUTCH CREEK	SNEAKFOOT MEADOWS
BULL RUN CREEK	FOUR-BIT CREEK	STEEP LAKES



Fenn Mountain and Rhodes Peak are in application process for official designation. Official designation occurs when an "*Establishment Report*" (a complete botanical flora and fauna report) is finished for the proposed RNA. This report should be completed when funding is available.

RESEARCH NEEDS

MONITORING ACTION

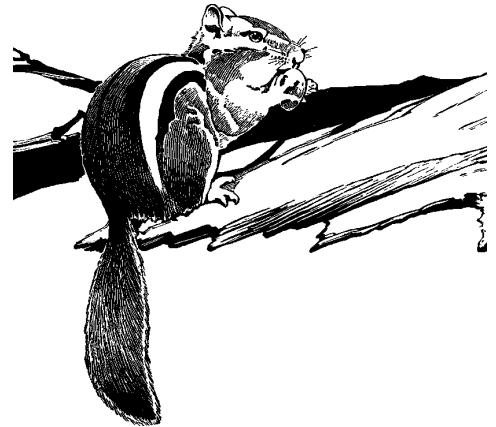
The Forest Planning staff will maintain a list of research needs. The initial list of approved research needs appears in the Forest Plan (pages II-15, 16). As additional research needs are identified, they will be added to this list.

Item No. 24 Research Needs

Frequency of Measurement: Annual
Reporting Period: Five Years

FINDINGS

In FY00, no new research needs were identified.



RIPARIAN AREAS

GOAL

Manage riparian areas under the principles of multiple use as areas of special consideration for distinctive values. Integrate riparian management with the management of adjacent areas to ensure the protection of the water resource and other dependent resources.

STRATEGY

Evaluate on-site and cumulative effects of proposed actions, resolving conflicts in favor of riparian-dependent resources. Define and identify riparian areas and their values. Develop direction and techniques to protect or enhance these values.

Item No. 10 Riparian Area Condition

Frequency of Measurement: Annual
Reporting Period: Five Years

MONITORING ACTION

Riparian monitoring stations have been established to determine baseline and current riparian conditions and also to determine the effects of road construction, timber harvest, site preparation and grazing.

ACCOMPLISHMENTS/FINDINGS

Baseline or current conditions, including channel characteristics, are monitored annually on several streams. This monitoring is repeated on a three-year cycle to determine trend in channel condition. Permanent channel cross sections are established in which gradient (channel slope), instream sediment concentration, channel substrate (rock size) composition, and photo points are established. Channel type and stability are determined for each of the streams. An attempt is made to associate cause with effect when conditions do not appear as natural. In 2000, due to lack of funding for monitoring, much of the scheduled riparian monitoring could not be done.

The following stations scheduled for riparian monitoring in 2000 were not done: Palouse River (gage), Squaw Creek, (gage), Papoose Creek (gage), Potlatch River (gage), North Fork of the Palouse River, Little Sand Creek, Big Sand Creek, White Pine Creek, Weir Creek, Crooked Fork Creek (below Shotgun), Little Boulder Creek, West Fork Potlatch River, East Fork Potlatch River, Fourth of July Creek, Deception Creek, North Fork Clearwater River (above Cedars), Lake Creek, Osier Creek, Swamp Creek, Kelly Creek (above Cayuse), Cayuse Creek.

Instream sediment was analyzed using the Wolman pebble count technique. (A Wolman pebble count classifies the size of stream substrate.) Channel cross-sections were measured to determine changes in deposition (sediment deposits) or scour (removal of channel rock) over time.

In 2000, the Forest measured channel geometry and instream sediment in nine streams across the Forest. Table 1 lists these monitoring sites. Data collected at each site may be obtained by contacting the Forest Hydrologist at the Supervisor's Office.

TABLE 1. CHANNEL MORPHOLOGY SITES - 2000.

Basin	Watershed	Beneficial Use	Activities
Lochsa River (17060303)	Crooked Fork Creek (below Unnamed Trib)	Chinook Salmon	Crooked Fire
	Crooked Fork Creek (above Rock Creek)	Chinook Salmon	Crooked Fire
	Crooked Fork Creek (below Haskell Creek)	Chinook Salmon	Crooked Fire
	Haskell Creek	Cutthroat	Crooked Fire
	Rock Creek	Cutthroat	Crooked Fire
Upper North Fork of the Clearwater River (17060307)	Unnamed Trib to Crooked Fork Creek	Cutthroat	Crooked Fire
	Cold Springs Creek	Cutthroat	Timber Sales
	Moose Creek (Abv Independence Creek)	Cutthroat	Mining
	Moose Creek (At Mouth)	Cutthroat	Mining

LOCHSA RIVER

MONITORING OF THE CROOKED FIRE ♦ During the summer of 2000, a 4,892-acre fire occurred in the Crooked Fork Creek watershed near Lolo Pass. The fire intensity was generally low to moderate and occurred in the Haskell, Rock, and unnamed watersheds that are all tributary to Crooked Fork Creek. As part of the BAER report¹, WATBAL was run for the Haskell Creek and Rock Creek watersheds. In Haskell Creek, it is predicted that sediment production will increase from 48% to 104% over natural.² In Rock Creek, sediment production is predicted changing from 31% to 295% over natural. Peak flow increases are estimated as going from 8% to 16% over natural in Haskell Creek and from 5% to 20% over natural in Rock Creek. The report concluded that these increases in sediment and water may adversely change the channels in the Crooked Fork watershed.

To reduce the effects of fire, contour felling of trees, tree planting, and removal of one culvert in Rock Creek were recommended. The contour felling and culvert removal are complete and the tree planting is scheduled for the spring of 2001. Along with these land treatments, monitoring was recommended in the Crooked Fork watershed, including stream and fisheries surveys and channel cross-sections with Wolman pebble counts.

Channel cross-section and Wolman pebble count monitoring was conducted in August and September 2000, or before the fire was contained and before any heavy fall rains. Measurements were collected at three sites along Crooked Fork Creek and at the mouth of Haskell, Rock, and an unnamed tributary to Crooked Fork. A summary of that data was presented in Table 2 and a more detailed report is presented.

¹ Burned Area Emergency Report for the Crooked Fire. September 11, 2000.

² Current sediment production in WATBAL does not consider sanding of Highway 12. Current sediment levels are known to be higher than predicted because of the sanding inputs to Haskell Creek.

Table 2 provides a summary of the Wolman pebble count data for each of the nine streams where these measurements were taken.

TABLE 2. SUMMARY OF WOLMAN PEBBLE COUNT DATA COLLECTED IN 2000. CHANNEL TYPE, GRADIENT, PERCENT FINE SEDIMENT, D50 (MEAN PARTICLE SIZE), AND D84 (TWO STANDARD DEVIATION FROM MEAN).

Stream	Channel Type	Gradient %	% Fines ¹ 0-2mm	% Fines ² 0-4mm	D50 in mm ³	D84 in mm ⁴
Crooked Fork Creek (below Unnamed Trib)	B3c	1.4	7.9	8.3	109 (Small Cobble)	73 (Small Boulder)
Crooked Fork Creek (above Rock Creek)	B3c	1.1	4.9	5.2	116 (Small Cobble)	278 (Small Boulder)
Crooked Fork Creek (below Haskell Creek)	B3c/C3	1.4	9.2	10.0	107 (Small Cobble)	231 (Large Cobble)
Haskell Creek	B4a	7.4	29.5	30.1	26.8 (Course Gravel)	212 (Large Cobble)
Rock Creek	A3/A3a	8.7	16.0	17.7	63 (Very Coarse Gravel)	334 (Small Boulder)
Unnamed Trib to Crooked Fork Creek	A4/A5	9.3	40.8	42.2	14 (Medium Gravel)	154 (Large Cobble)
Cold Springs Creek	B3a	4.7	7.7	7.7	88 (Small Cobble)	276 (Small Boulder)
Moose Creek (above Independence Creek)	B3c, B4c, C3, C4	1.8	12.5	13.5	54 (Very Coarse Gravel)	150 (Large Cobble)
Moose Creek (at mouth)	B4c/B3c	0.4	14.8	14.8	54 (Very Coarse Gravel)	150 (Large Cobble)

¹ Clay, silt, and sand.

² Clay, silt, sand, and very fine gravel.

³ The mean particle size. The stream classification is based on the D50.

⁴ The diameter that is equal to 84% of the bed particles. The choice of the 84% value is arbitrary; it is two standard deviations larger than the mean size, assuming a normal distribution. Experience has shown that particles larger than the median size play an important role in flow resistance, and therefore a single parameter to describe bed particle size should be some size larger than the median.

Three channel cross-sections were surveyed, along with stream gradient and Wolman pebble counts in Crooked Fork Creek below the unnamed tributary. The channel was found in a stable condition with a low level of fine sediment. Combined Wolman pebble count data for the three transects is presented in Figure 1. The same information is presented for Crooked Fork Creek above Rock Creek (Figure 2) and Crooked Fork below Haskell Creek (Figure 3). The mean value of fine sediment, less than 2 mm is less than 10% for each set of transects. Although impacts and channel changes have been detected in the tributary streams, Crooked Fork Creek shows no signs of direct, indirect, or cumulative effects from management activities upstream.

Figure 1. Crooked Fork Creek Below Unnamed Tributary. SEPTEMBER 20, 2000. WOLMAN PEBBLE COUNT PARTICLE SIZE DISTRIBUTION AND CUMULATIVE PERCENT.

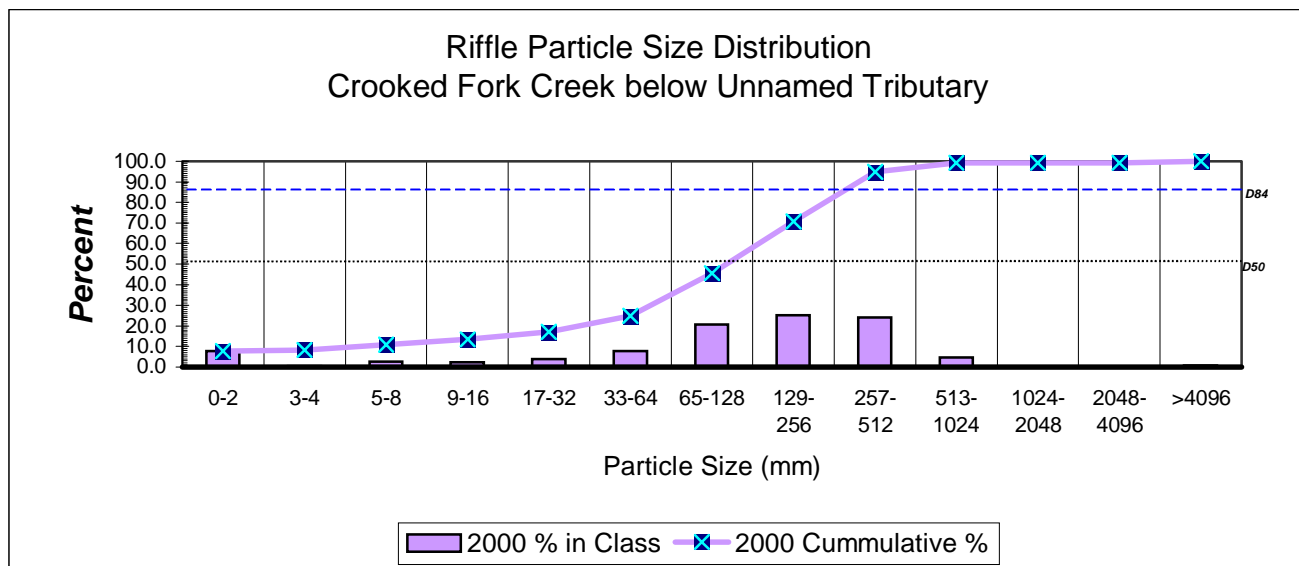


Figure 2. Crooked Fork Creek Above Rock Creek. SEPTEMBER 19, 2000. WOLMAN PEBBLE COUNT PARTICLE SIZE DISTRIBUTION AND CUMULATIVE PERCENT.

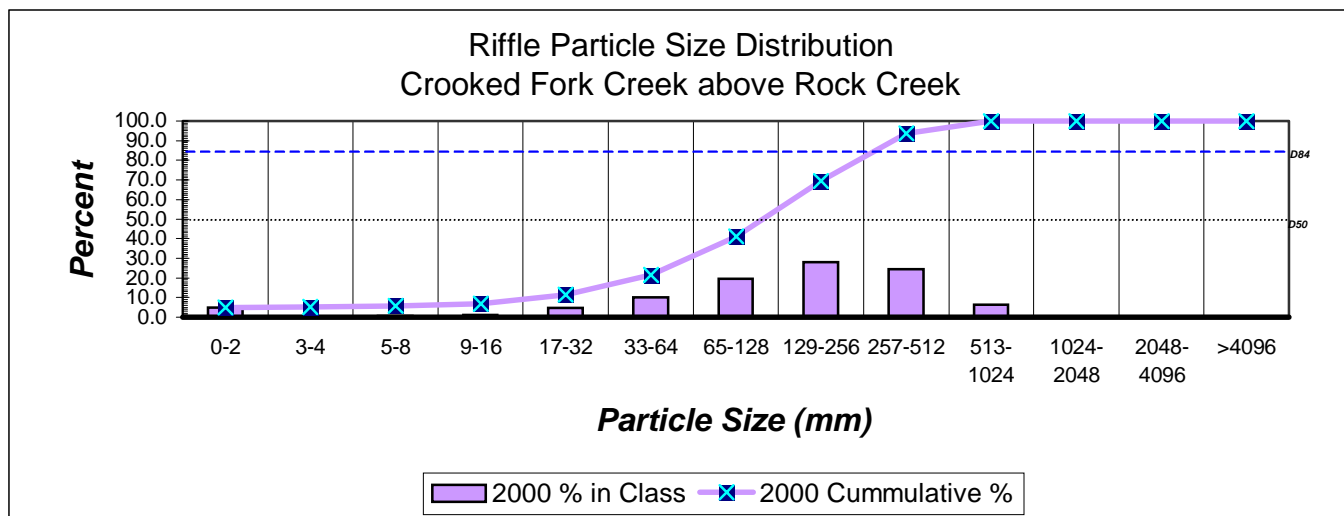
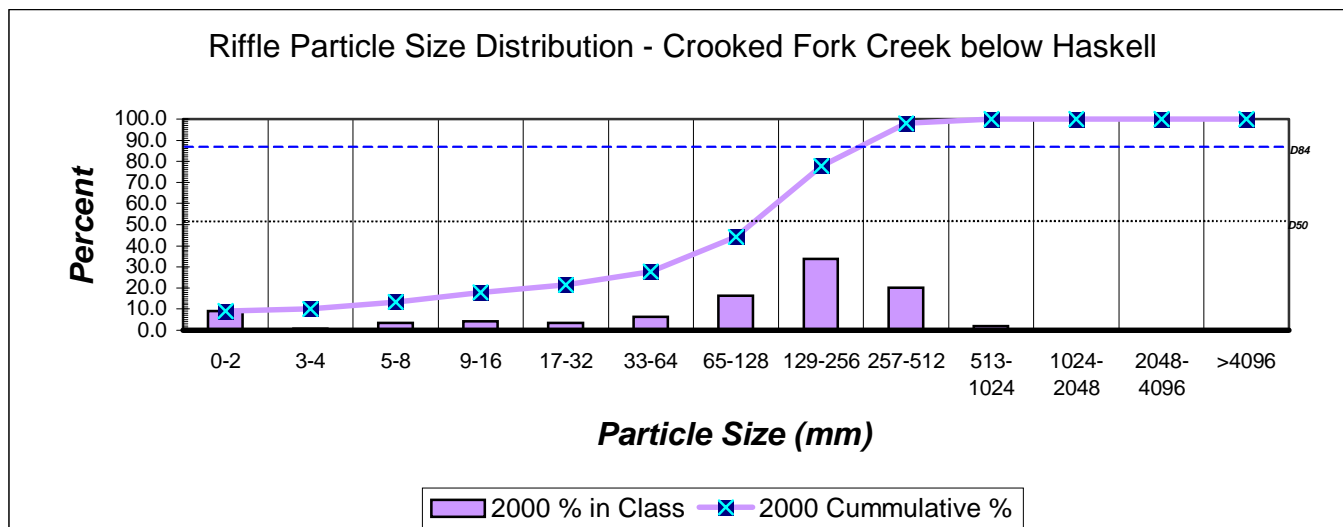


Figure 3. Crooked Fork Creek Below Haskell Creek. AUGUST 31, 2000. WOLMAN PEBBLE COUNT PARTICLE SIZE DISTRIBUTION AND CUMULATIVE PERCENT.



Channel cross-sectional monitoring was originally done in three transects near the mouth of Haskell Creek in 1995. These transects were repeated in 2000, immediately after the fire and before any significant rainfall. Figure 4 shows the three transect cross-sections in Haskell Creek that were done in 1995 and repeated in 2000. It can be clearly seen that the channel has scoured at each transect over the past five years. A Wolman pebble count was also originally done in 1995 and repeated in 2000.

Figure 6 shows the mean particle distribution for the three transects with an increase in fine sediment (0-2mm) from 10.9% in 1995 to 29.5% in 2000. Based upon the cross-sectional surveys and Wolman pebble counts in Haskell Creek, there are known effects, such as a scoured or degrading channel and increase in fine sediment, both 0-2mm and 0-4mm. What is unknown, with certainty, are the causes of the scour and sediment problems observed. Most likely, the 1995-1996 flood and increases in peak flow and sediment from the highway and, to a lesser extent logging, have damaged Haskell Creek. Large quantities of sediment are added each year to Haskell Creek by the Idaho Department of Transportation sanding of Highway 12. It is probable, that the many years of sanding of Highway 12 are beginning to accumulate as sediment at the mouth of Haskell Creek.

Figure 4. Haskell Creek Cross Sections, 1995-2000. SHOWING CHANNEL SCOUR BETWEEN 1995 AND 2000.

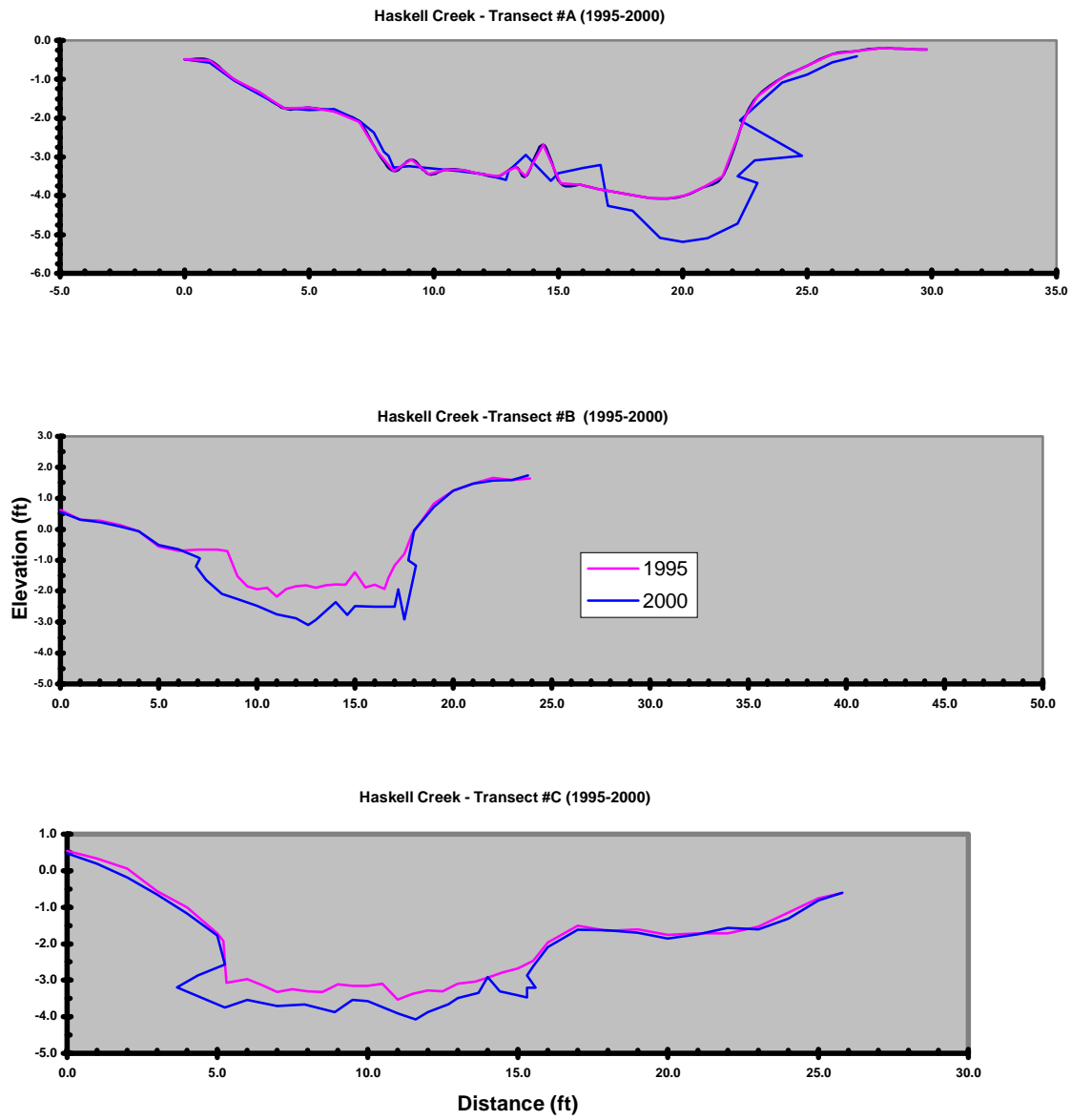
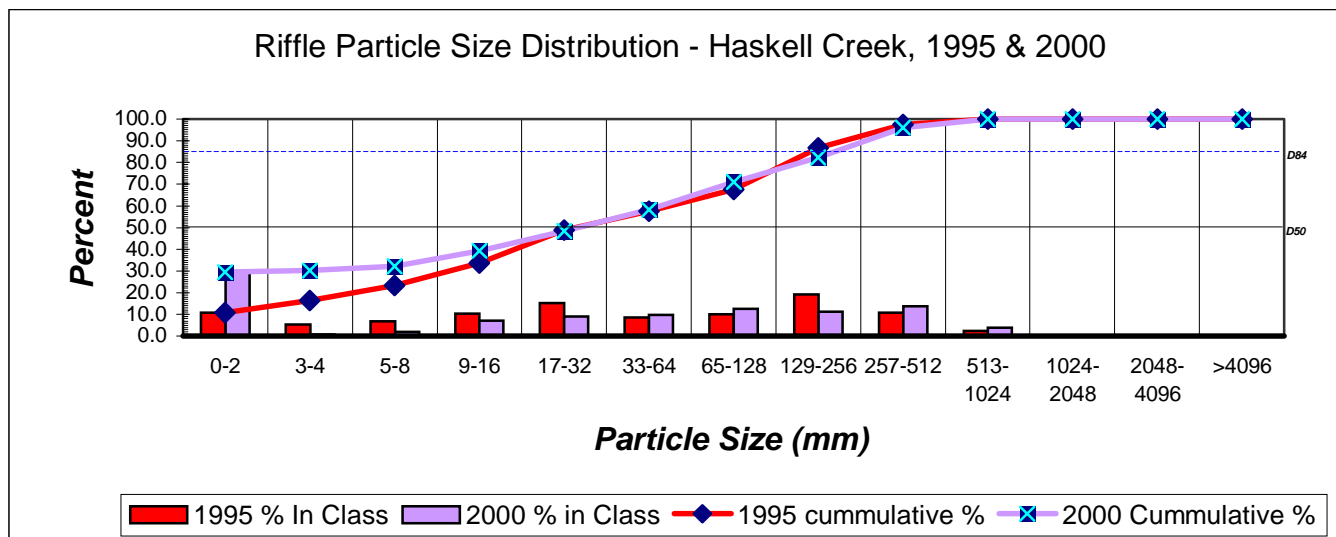


Figure 5. Haskell Creek Wolman Pebble Count. 1995-2000. SHOWING AN INCREASE IN FINE SEDIMENT BETWEEN 1995 AND 2000.



Channel cross-sectional monitoring was also done at three transects near the mouth of Rock Creek in 1995. These transects were repeated in 2000, immediately after the fire and before any significant rainfall. Figure 6 shows the three transect cross-sections in Rock Creek that were done in 1995 and repeated in 2000. Similar to Haskell Creek, channel scour was observed at each transect over the last five years. A Wolman pebble count was also originally done in 1995 and repeated in 2000.

Figure 7 shows the particle distribution with a slight decrease in fine sediment (0-2mm) from 17.1% in 1995 to 16.0% in 2000. It is possible the 1995-1996 floods caused the channel scour observed in Rock Creek. Channels scoured in both Rock and Haskell creeks, however sediment increased only in Haskell Creek. Except for Highway 12, management of the two watersheds is similar. This seems to support the previous conclusion that the sediment increase at the mouth of Haskell Creek is most likely the result of highway sanding.

Figure 6. Rock Creek Cross Sections, 1995-2000. SHOWING CHANNEL SCOUR BETWEEN 1995 AND 2000.

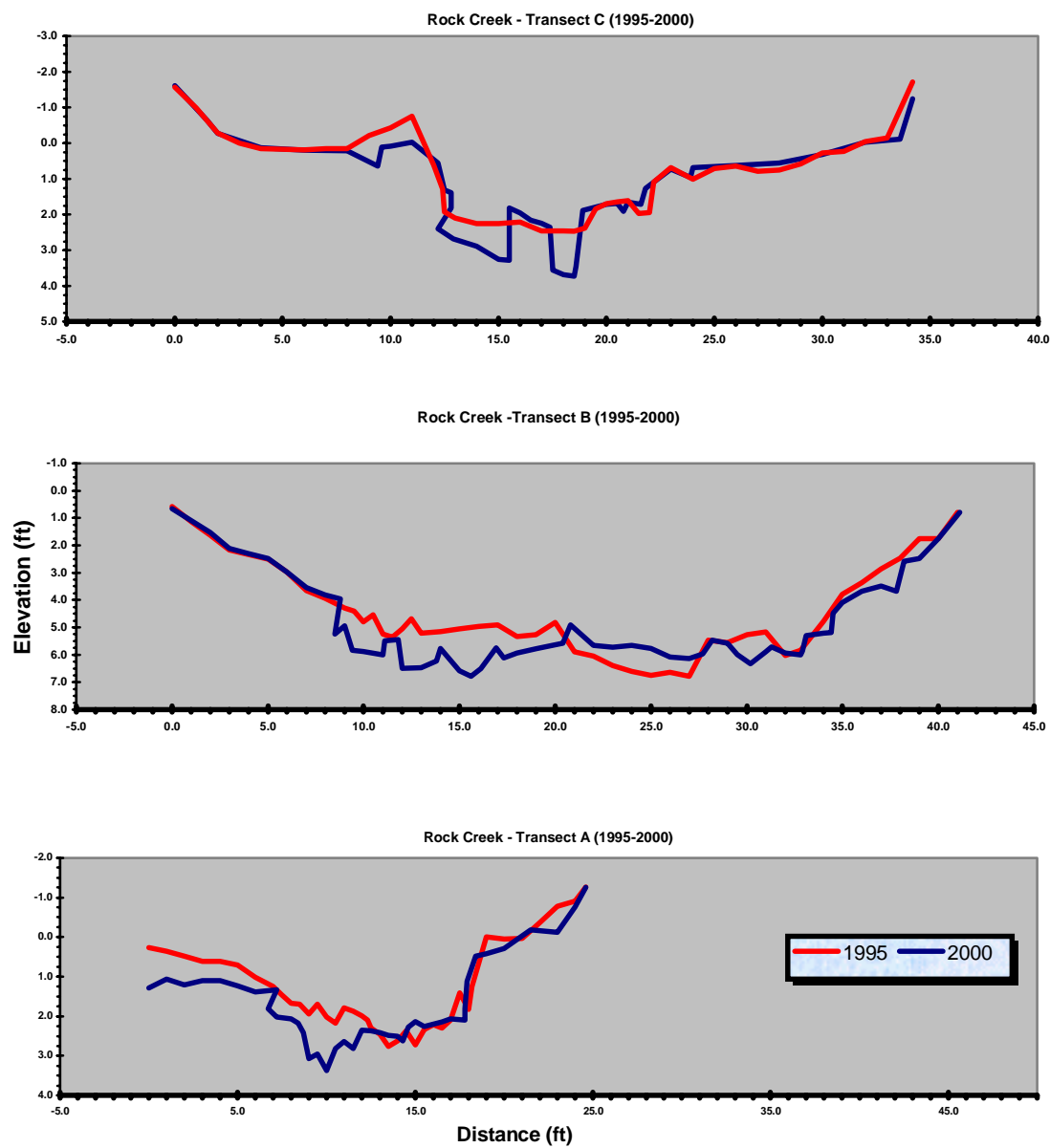
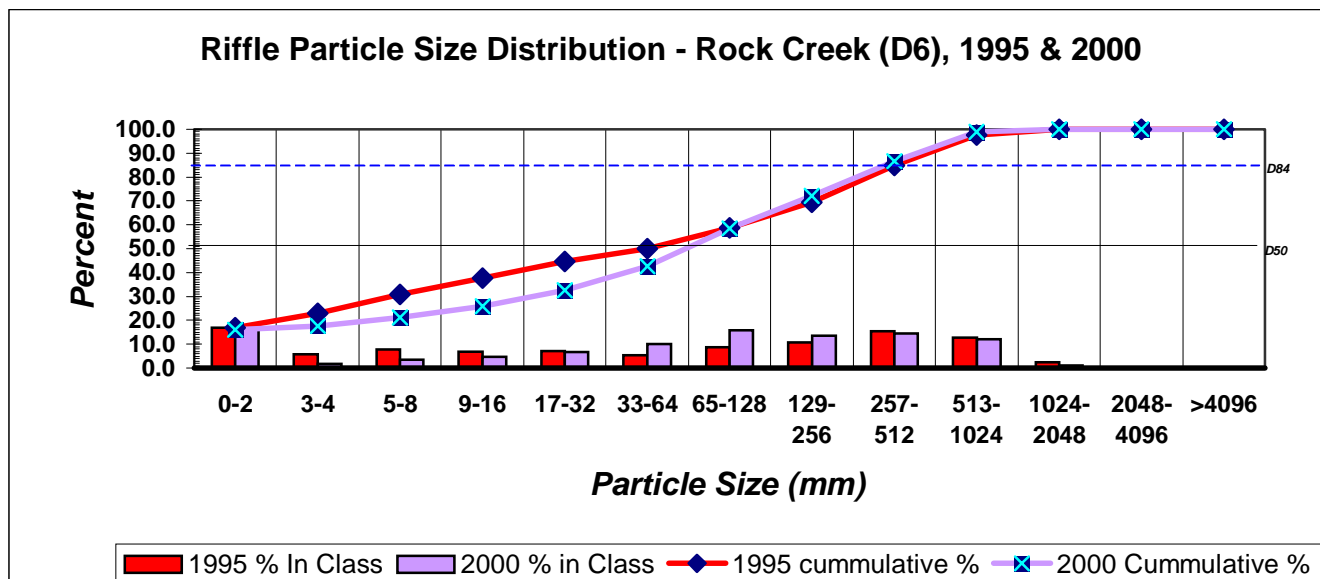


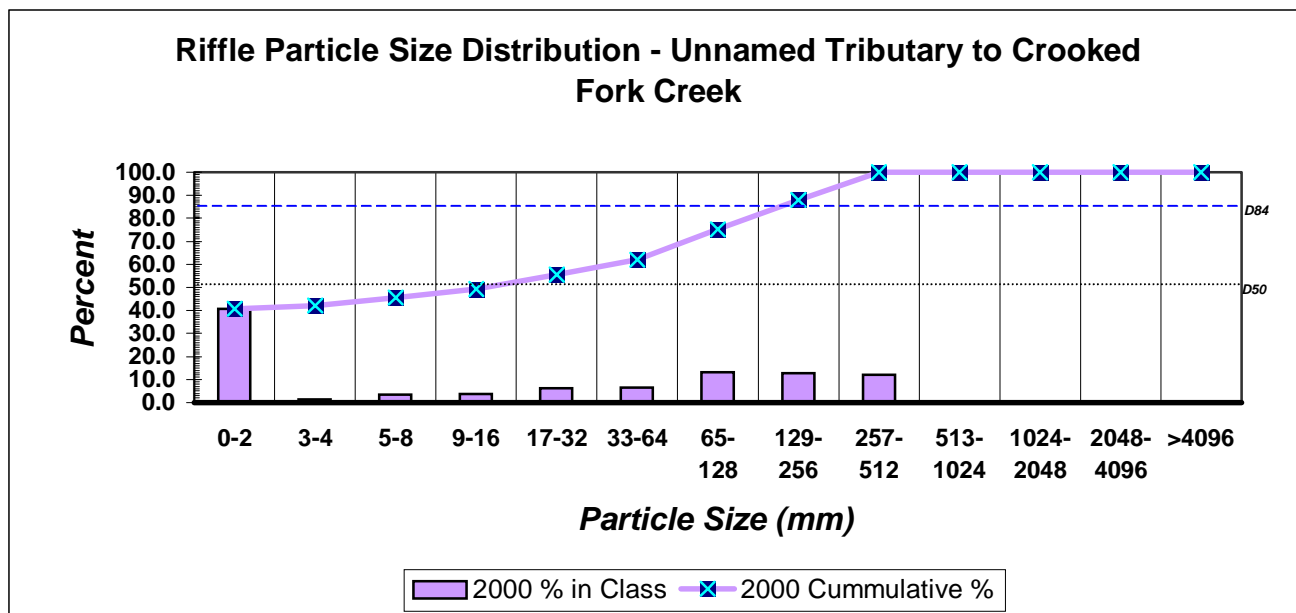
Figure 7. Rock Creek Wolman Pebble Count. 1995-2000. SHOWING PARTICLE DISTRIBUTION AND FINE SEDIMENT IN 1995 AND 2000.



The last stream selected for monitoring of the Crooked Fire is an unnamed tributary of Crooked Fork Creek. Three channel cross sections with Wolman pebble counts were installed on this stream. The Wolman pebble count data is presented in Figure 8. Percent fine sediment (0-2mm) is 40.8%. This high level of fine sediment is not uncommon for small A4/A5 channel types in breakland landforms. However, some of this sediment could be associated with the logging and road construction within the watershed.

Monitoring will continue at each of the sites discussed in 2001 in an effort to detect channel and sediment effects from the Crooked Fire.

Figure 8. Unnamed Stream. SEPTEMBER 20, 2000. WOLMAN PEBBLE COUNT PARTICLE SIZE DISTRIBUTION AND CUMULATIVE PERCENT.



UPPER NORTH FORK OF THE CLEARWATER RIVER

COLD SPRINGS CREEK ♦ The Cold Springs Creek gaging station was reinstalled in 2000 to monitor the recovery of this watershed from past timber harvest and road construction. This station operated from 1983 through 1993. In addition to monitoring the recovery of past management, the gaging station will monitor the obliteration of 42 miles of road and the removal of approximately 56,000 cubic yards of fill material from stream crossing sites. Stream stage, flow, suspended sediment, turbidity, and water temperature are monitored at this site (See SOIL AND WATER monitoring section in this report).

In addition to these parameters, channel cross-section and gradient were surveyed in August of 1988 and 2000. The cross-sections are shown in Figure 9. There has been essentially no change in channel profile from 1988 to 2000. A Wolman pebble count was also done in 1988 and 2000 and the results are shown in Figure 10. The measurements indicate a stable cross section with a decrease in fine sediment from 24.0% (0-4mm) in 1988 to 7.7% (0-4mm) in 2000. Cold Springs Creek seems to be recovering from past management impacts. Monitoring of this station will be repeated in 2003.

Figure 9. Cold Springs Creek Cross-Section, August 2000.

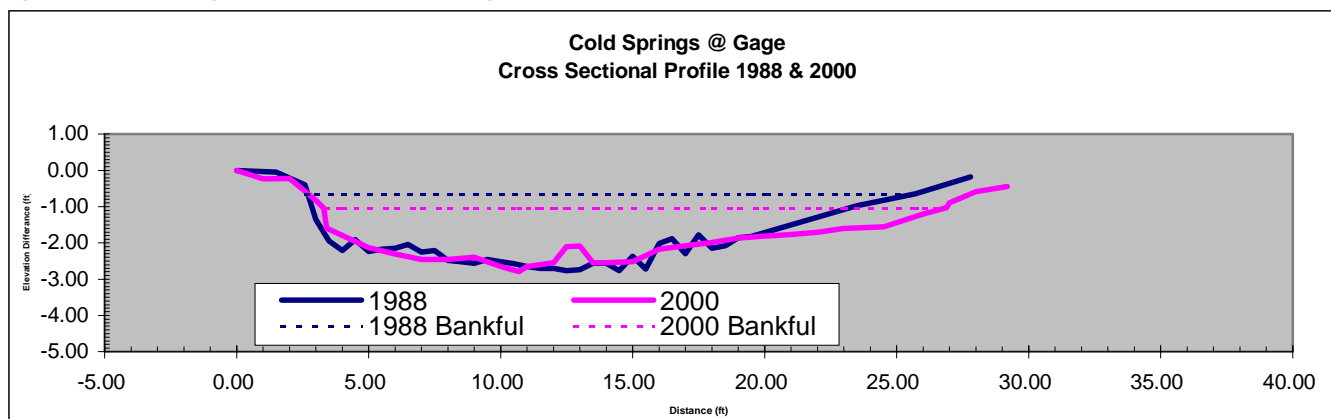
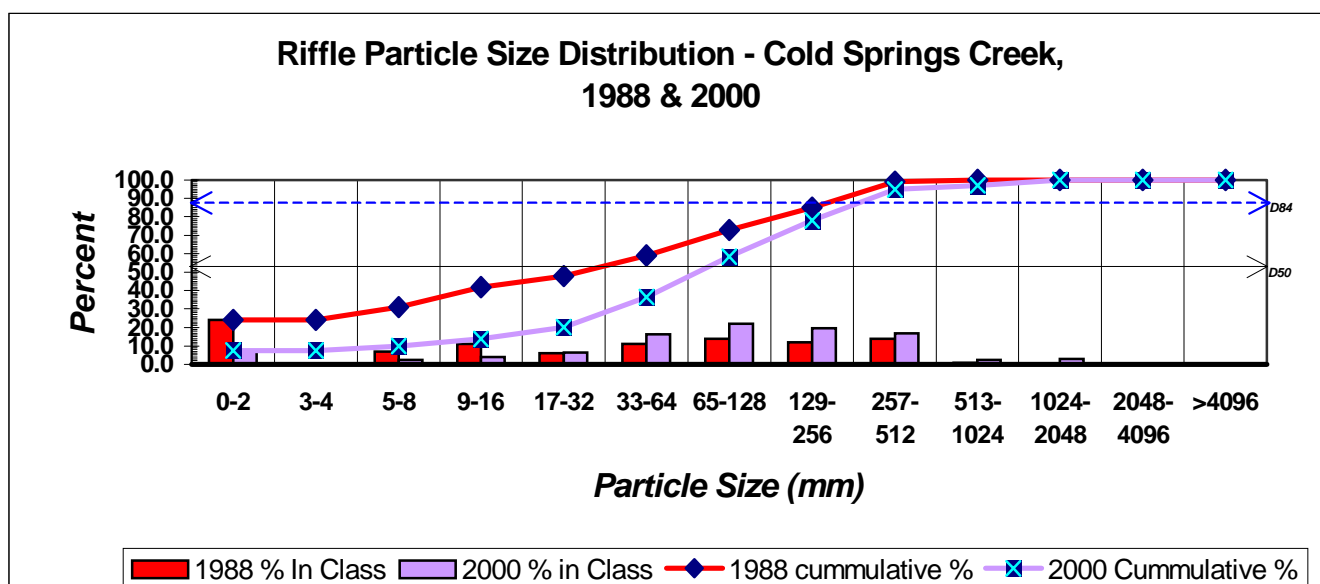


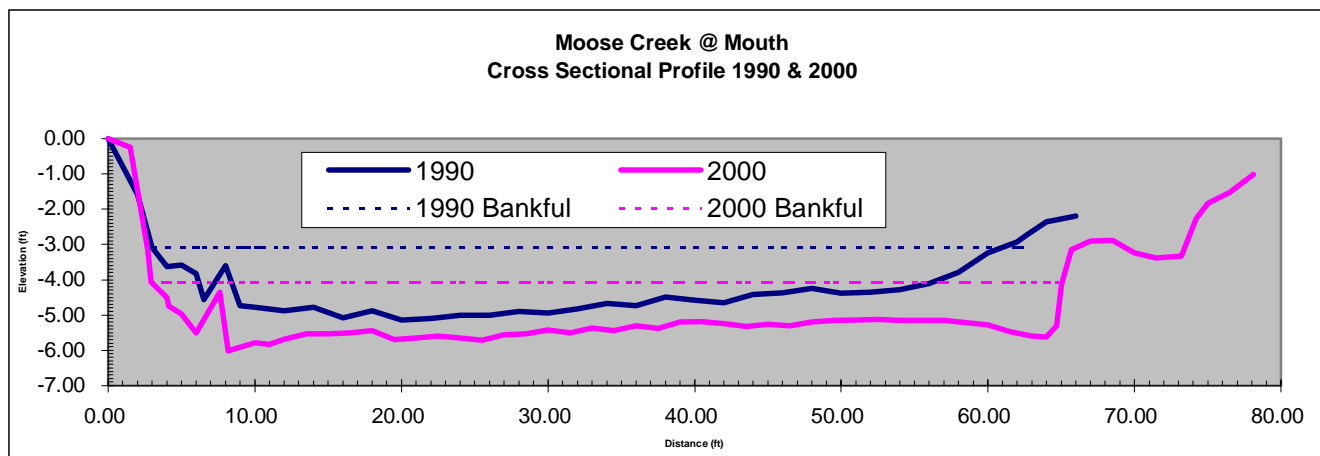
Figure 10. Cold Springs Creek, August 2000. WOLMAN PEBBLE COUNT PARTICLE SIZE DISTRIBUTION AND CUMULATIVE PERCENT.



MOOSE CREEK MINING ♦ Monitoring was established in 2000 in the Moose Creek drainage to measure the effects of several, small suction dredge mining operations occurring in both Moose and Independence Creeks. Two stations were established, one at the mouth of Moose Creek and the other in the mining district of Moose Creek above Independence Creek. Moose Creek, at the mouth station, was originally measured in 1990. Therefore, 2000 data is compared with the stream characteristics measured 10 years ago.

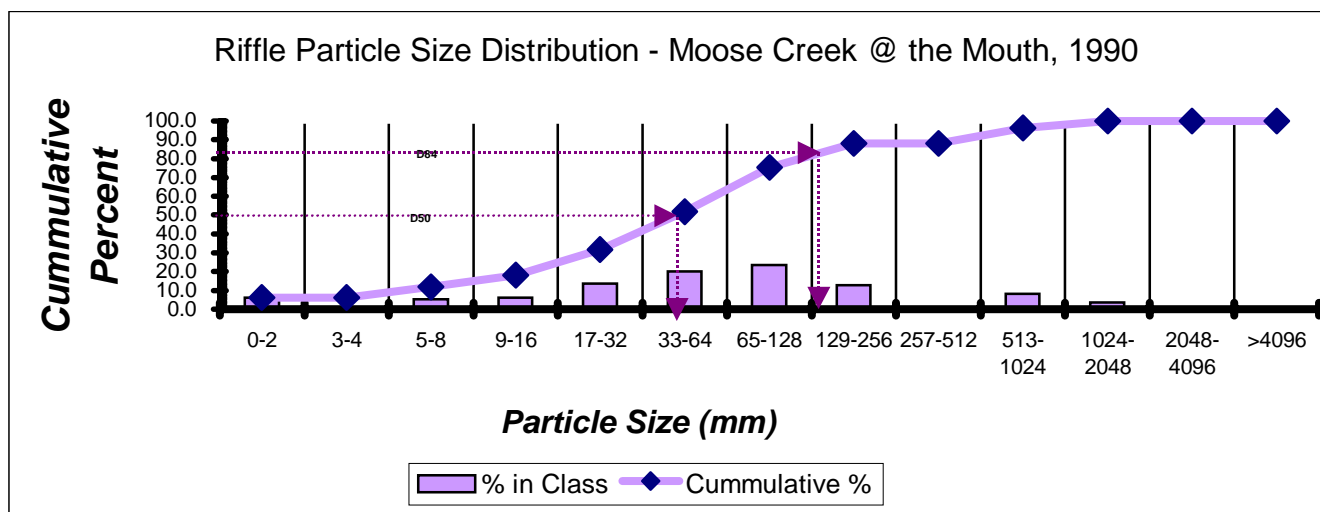
A survey of the channel cross-section and stream gradient was done at the mouth of Moose Creek in August 1990 and again in August 2000 (Figure 11). Both channel scour and widening occurred. The cause of these changes is unknown, however they could be related to the 1995-1996 floods or the upstream suction dredge mining. These effects could also be partially related to past logging and road construction in the watershed, however, watershed recovery from timber harvest and road construction has been ongoing since 1977.³

Figure 11. Moose Creek at the Mouth, 1990 and 2000. CROSS SECTIONAL PROFILE SHOWING CHANNEL SCOUR AND WIDENING.

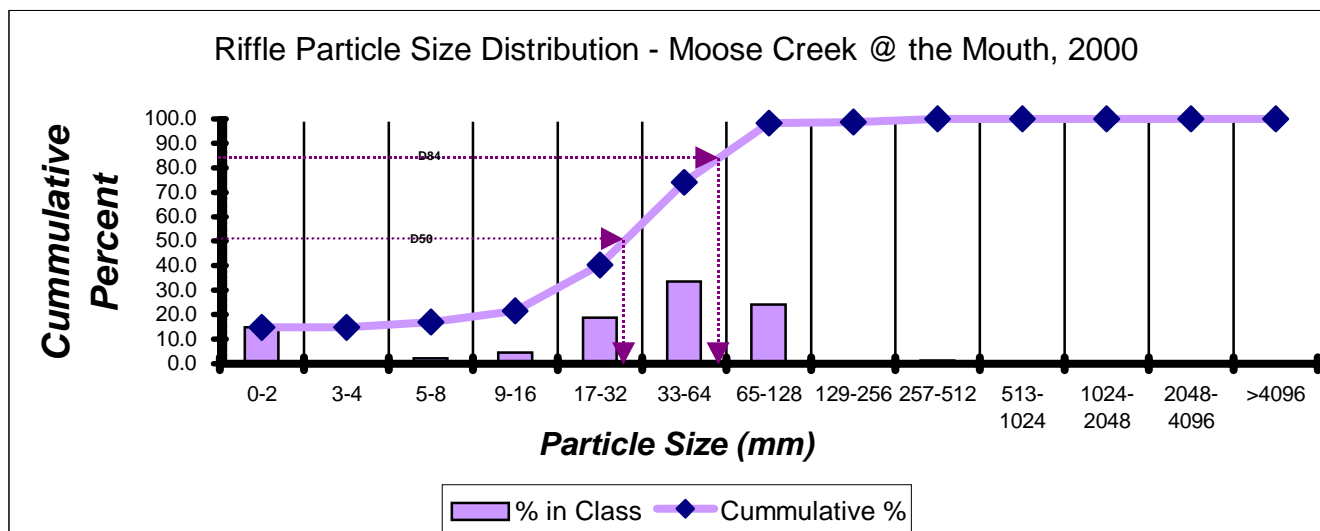


Wolman pebble counts were also collected in 1990 and again in 2000. This data is presented in Figures 12 and 13.

Figure 12. Moose Creek at the Mouth, August 1990. WOLMAN PEBBLE COUNT PARTICLE SIZE DISTRIBUTION AND CUMULATIVE PERCENT.



³ Berglund, Arnie. 1991. WATBAL, Moose Creek at the Mouth.

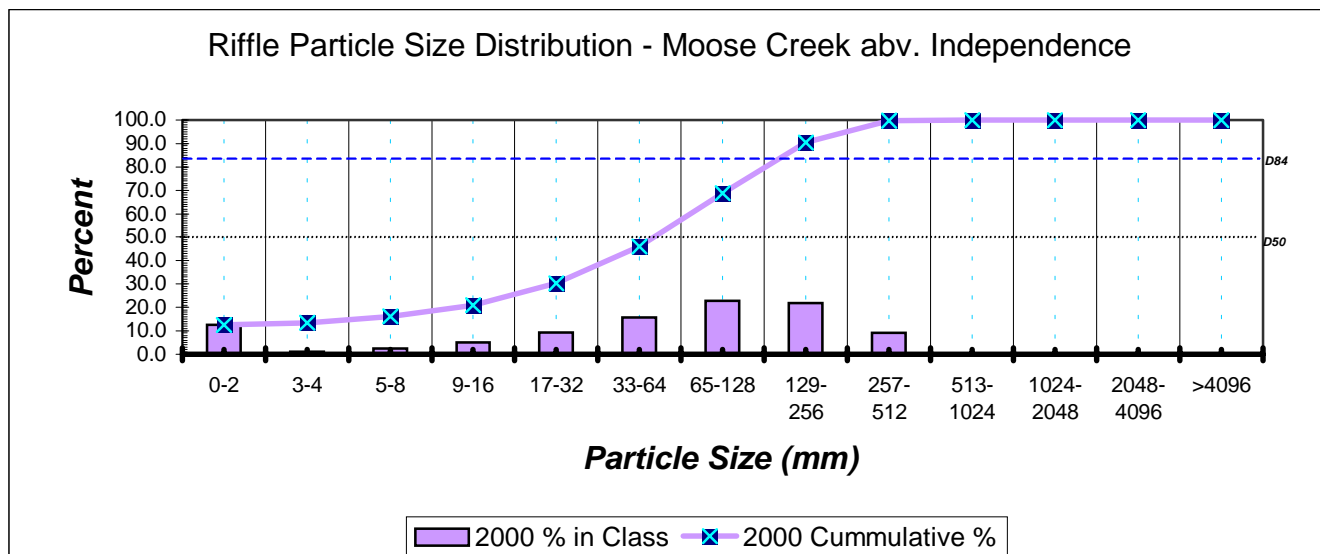
Figure 13. Moose Creek at the Mouth, August 2000. WOLMAN PEBBLE COUNT PARTICLE SIZE DISTRIBUTION AND CUMULATIVE PERCENT.

Sediment in percent fines in 1990 was 6.4% (0-4mm). Sediment increased to 14.8% in 2000. The average diameter of the largest particles on a fresh depositional area of Moose Creek at the mouth in 2000 was 149mm. Moose Creek is moving cobbles 149 mm in size at bankfull streamflow, which generally occurs once every 1.5-2.0 years. Comparing this number with the cumulative particle size distribution (Figure 13), Moose Creek at the mouth is moving approximately 98% of the channel particles at bankfull flow. This is the Riffle Stability Index (RSI) number. Rosgen B channels with index numbers higher than 75 generally exhibit increased sedimentation.⁴ This is the third indicator that Moose Creek at the mouth is unstable or sediment is increasing in the channel.

Three transects were also surveyed in Moose Creek above Independence Creek. These transects were located in the heart of the mining district, however none of the transects were mined in 2000. Results of the three Wolman pebble counts are shown in Figure 14. Mean percent sediment (0-4mm) for the three transects is 13.5%.

⁴ Kappesser, Gary. 1997. Riffle Stability Index.

Figure 14. Moose Creek Above Independence Creek, August 2000. WOLMAN PEBBLE COUNT PARTICLE SIZE DISTRIBUTION AND CUMULATIVE PERCENT.



RSI was computed at Transect 3, where the channel type is a C3b and gradient is 2.5%.⁵ The average diameter of the largest particles on a fresh depositional area was 138 mm. Comparing this number with the cumulative particle size distribution (Figure 16), Moose Creek is moving approximately 77% of the channel particles at bankfull flow. This is the Riffle Stability Index (RSI) number. Rosgen B gradient channels with index numbers higher than 75 generally exhibit increased sedimentation. The channel characteristics measured indicate a moderate level of sediment and borderline channel stability.

The Moose Creek channel cross-section surveys will be repeated in 2003 to further determine the suction dredge mining effects.

⁵ Transects 1 and 2 have gradients of 1.6% and 1.4%, respectively. The RSI procedure works best on "B" gradient streams (2-4%).

ROAD OBLITERATION PROGRAM

GOAL

The goal of road obliteration on the Clearwater National Forest is to reduce watershed impacts by reclaiming roads that are no longer a necessary part of the Forest's transportation system. The primary objectives for the Forest's obliteration program are:

- *Reduce erosion from road surfaces and slopes and related sedimentation of streams.*
- *Reduce the risk of mass failures and subsequent impact on streams.*
- *Restore natural surface and subsurface drainage patterns.*
- *Use road maintenance funds more effectively - concentrate the available funds on roads that are needed for long-term access.*

ACCOMPLISHMENTS/FINDINGS

Obliteration is designed to significantly reduce, if not eliminate mass failure risks, promote continuous drainage, revegetate eroding areas, and leave the area ready to be reforested or able to reforest naturally. Based on field information about the roads' condition, a road to be eliminated is targeted either for abandonment or some level of obliteration.

A road to be *abandoned* is already stable and revegetating naturally. No physical work is required for abandonment, just a change in the database to reflect the fact that it no longer will be tracked as a road. However, roads to be *obliterated* will require some physical work in addition to the database change. The extent of obliteration work required is classified in four levels.

- *Level 1. Recontouring at the start of the road to restrict vehicle access.*
- *Level 2. Some work required along the road to address mass failure or erosion risk factors.*
- *Level 3. Substantial work required along the full length of the road.*
- *Level 4. Recontouring of most of the road.*

Generally, the following work is performed in obliteration levels 2 through 4. Culverts are removed. Fills are removed in the area around live streams and stream channels are restored to their original grade. Ditches are eliminated and the road surface is strongly outsloped or recontoured to provide continuous drainage. Road surface may be decompacted to promote tree growth. Disturbed areas are seeded with nonpersistent grasses. Erosion control blankets are installed at sensitive locations such as near stream crossings to control surface erosion. Other disturbed areas receive straw mulch, native woody debris mulch, or a scattering of logs and stumps. Native forbs, shrubs and duff excavated during outsloping or recontouring are transplanted into the disturbed areas. At completion, the area will no longer convey vehicle traffic, and requires no maintenance.

In FY00, 50.0 miles of road were obliterated at a cost of \$9,080 per mile. This cost includes equipment, materials, labor and project administration and inspection.

YEAR	RECONSTRUCTION (Miles)	NEW CONSTRUCTION (Miles)	OBLITERATION (Miles)
1987	20.1	18.9	0
1988	45.4	49.2	0
1989	77.6	34.7	0
1990	39.8	31.5	0
1991	61.4	36.1	0
1992	66.4	37.2	9.5
1993	45.3	3.8	2.6
1994	61.6	8.6	1.4
1995	108.9	1.5	9
1996	72.0	1.8	15
1997	7.6	1.0	52
1998	85.3	1.1	134
1999	19.8	1.0	83.5
2000	33.1	8.6	47.4
TOTAL	744.3	235.0	354.4

Roads that are needed for the long-term transportation system but are not being used now (and probably won't be needed for at least 10 years) are put into LTIS status. This requires ensuring that the road is stable and will not need to be maintained for the non-use period.

LEVEL II MONITORING

Level II monitoring examines the treatments used in road obliteration to determine their effectiveness in reducing mass failure risks, promoting continuous drainage, controlling surface soil erosion through revegetation, and leaving the area ready to be reforested.

In 1998, six ¼-mile monitoring segments were established along selected sections of obliterated roads. In 1999, 14 new segments were added; 10 more were added in 2000. In each subsequent year, 10 segments will be added. Established segments are monitored for their first three years, then on the fifth year, then at five-year intervals thereafter. Road obliteration treatments monitored include

- (1) *general road treatments,*
- (2) *mulch,*
- (3) *reconstructed stream channels (after culvert removal),*
- (4) *cross drain channels,*
- (5) *vegetation treatments, and*
- (6) *erosion control blankets.*

In addition, Level II monitoring was conducted to measure the amount of sediment produced during obliteration of a road immediately adjacent to a stream.

LEVEL II MONITORING RESULTS

General Road Treatments • General road treatments include recontouring, out-sloping, decompaction and abandonment of roads to restore slope stability and drainage patterns. A full recontour involves re-establishing the natural contours of the hillside and restoring the original topography. Out-sloping involves pulling up fills, leaving a cross slope of generally 10%-30%. Decompaction or ripping involves reducing soil density to allow for water infiltration and plant growth. Decompaction may also occur in combination with recontouring or out-sloping. Stable sections of roads that are already vegetated may be abandoned. To date, 40% of obliterated road surfaces are fully recontoured, 35% are out-sloped, 12% are solely decompacted, and 13% are abandoned.

General road obliteration treatments appear to be successfully restoring slope stability, slope hydrology, and controlling surface erosion by treating problems associated with older, mostly unmaintained roads. Some benefits include removing log and slash fills, stabilizing saturated fills, and restoring fills that were built on slopes too steep to remain stable.

Mulch • Native woody debris (native brush and trees that grow on and along the roadside) and weed free straw are used as mulch. Mulch protects soil from the effects of wind, rain, and the hot sun. It helps to build soil and safeguards soil from surface erosion. The Forest's goal is to leave 75%-100% of the disturbed surface on obliterated roads with a mulch layer. Monitoring results averaged from 29 sites across the Forest are as follows;

- *native woody debris mulch is used on 51% of obliterated road surfaces,*
- *straw mulch is used on 43% of obliterated road surfaces, and*
- *bare ground is left on 6% of obliterated road surfaces.*

Monitoring results also show that areas mulched with straw are highly effective in promoting vegetative growth and in preventing soil erosion. Areas mulched with native vegetation have a low to moderate success in vegetative growth and a mixed rating showing either low or high results in controlling soil erosion.

Reconstructed Stream Channels • During road obliteration, all stream channels are reconstructed to their natural grade by removing all placed fill from the channel area. Reconstructed stream grade channels are monitored to determine if treatments are effective in leaving channels in a stable condition. Channel cross-section and longitudinal profile surveys are used to determine the stability of reconstructed stream channels. At this time, most channels appear to be stable. The real test will come with the next extreme weather event on the Forest.

Cross Drain Channels • Cross drain channels are drainage paths constructed in areas with no defined stream channel or where a road may disrupt natural drainage. Cross drain channels are constructed to aid drainage from seeps, swales, undefined draws and other potentially wet areas with no defined stream channel. Monitoring shows that 67% of cross drain channels are draining seeps; 24% are draining swales or undefined draws; and 9% are draining other wet areas. Cross drain channels are installed on slopes ranging from 2%-50% with the average being 24%. Establishment of vegetation in cross drain channels aids in controlling soil erosion. Mulch is also effectively used in cross drain channels to control soil erosion.

Vegetation Treatments • All obliterated roads are seeded with grass to control surface erosion until native plants have time to establish. The seed mixture is designed to be aggressive in the short term but not persistent over time. This is done to reduce competition with native species. Additionally, the duff layer, including reproductive parts of native plants, is pulled down from the cut slope and spread across the former road surface. This promotes the production of native plants. Density data is collected to track native plant succession (Figure 1). The line intercept method is used to measure the effectiveness of vegetation and other ground covers in controlling surface soil erosion (Figure 2).

Figure 1. Density data. COMPARISON OF THE PERCENT OF VEGETATIVE TYPES FOR YEARS 0 – 4 AFTER OBLITERATION.

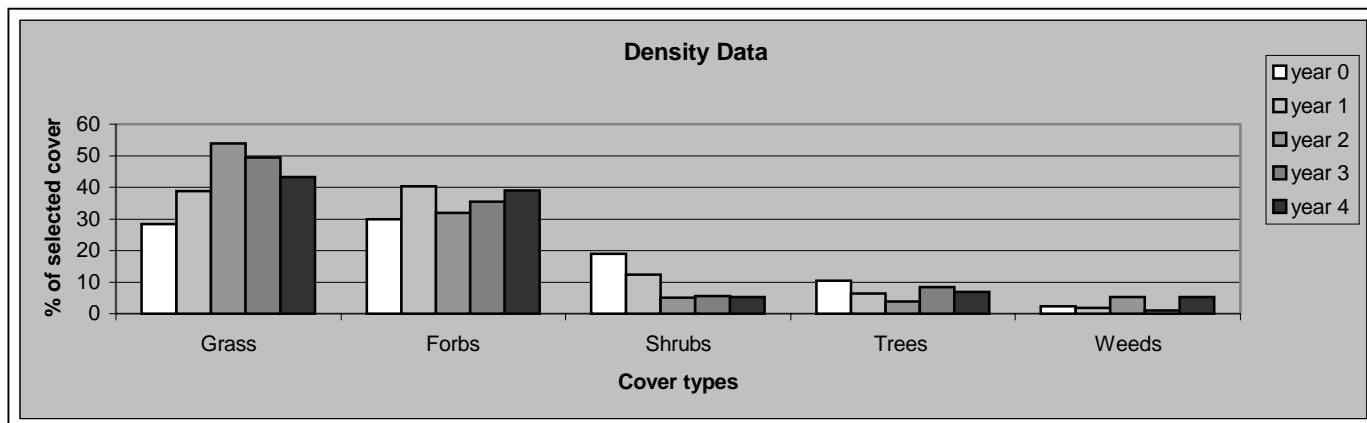
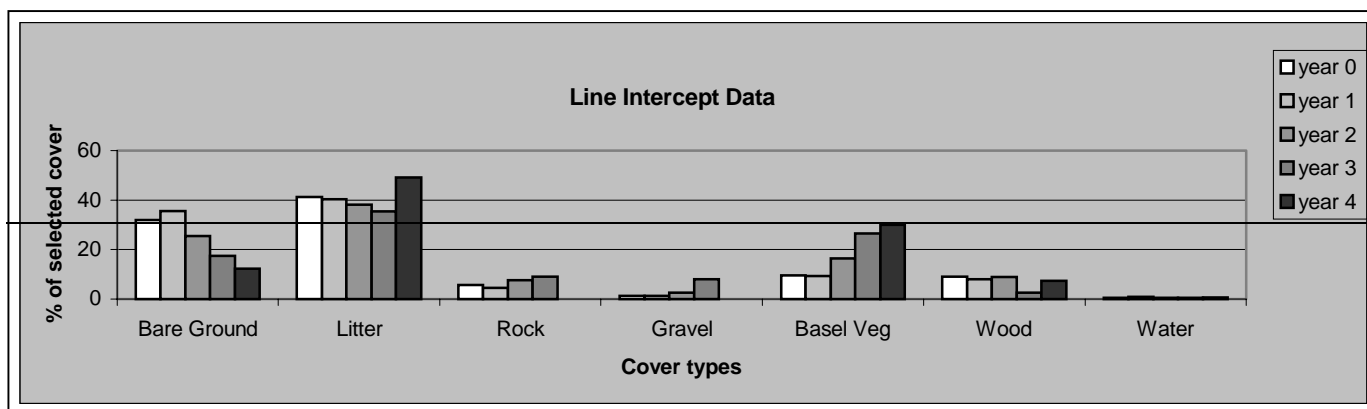


Figure 2. Line Intercept Data. COMPARISON OF THE PERCENT OF AREA IN SELECTED GROUND COVER CLASSES FOR YEARS 0 – 5 AFTER OBLITERATION



The density data (Figure 1) indicates that the more recently obliterated roads have more shrubs growing on them, probably due to increased emphasis on transplanting native brush. The expected decrease in grasses and increase in native forbs is not evident. However, the line intercept data shows that bare ground does decrease over time while basal vegetation increases (Figure 2). For a more detailed analysis see the “***1999 Clearwater National Forest Watershed Restoration Monitoring Results.***”

Erosion Control Blankets • Erosion control blankets are manufactured mats made of straw or coconut fibers and are held together by cotton or synthetic fibers. These blankets have not been used since 1998 because they have a longer life, which is undesirable, than the natural fiber blankets. Native mulch and straw has

replaced these blankets. Utilizing native materials for erosion control meets the Forest's goals of controlling surface erosion while encouraging quicker vegetation growth.

LEVEL III MONITORING RESULTS

In 2000, sediment monitoring was conducted on a temporary road that was located immediately adjacent to Doe Creek in the Squaw Creek watershed, near Powell, Idaho. This road was built in the 1950s to harvest bug killed spruce and was constructed with a dozer using side cast construction techniques. Suspended sediment and turbidity in Doe Creek was measured during the obliteration of the first 3,665 feet of this road.

This section of Doe Creek is a Rosgen A2a and A3a channel type with an average gradient of 15%. Average discharge was 1.6 cubic feet per second (cfs) during the July 31-August 8 period of construction. This section was selected because of the unique opportunity to monitor sediment produced by road obliteration under the most difficult conditions.

Much of the road encroached on the streambanks of Doe Creek, with failing slash and log cribbing reducing the flood plain width and acting as a chronic source of sediment. The road contained over 65% fill slopes, 4 failed log culverts, and 12 running seeps, creating a large area of instability and source of perennial sediment.

The monitoring project examined the Forest's ability to work in close proximity to streams while minimizing the production of sediment. Monitoring for suspended sediment and turbidity in Doe Creek consisted of placing three automatic water samplers (ISCO's) at the top, bottom, and center of the stream reach (See Figure 3).

In addition to measuring sediment delivered to Doe Creek, sediment was also measured in two unnamed perennial tributaries during culvert removal and channel reconstruction. Grab samples were taken in these two streams above and below the work area. Additionally, ISCO #2 was placed just below these two channels to capture sediment and turbidity reaching Doe Creek.

The ISCO's were activated in Doe Creek on 7/31/00 at 7:15 a.m., several hours before work began on the two tributary channels. ISCOs ran continuously until all work along this section of road was completed on August 8, 2000. The ISCOs were set to record samples every 15 minutes with a composite of four samples per bottle (except over the weekend when a composite of four one-hour samples were taken and no work was underway). Upper (control) grab samples were taken 100 feet above the work on the two small channels (labeled Channel 1 and Channel 2 in Figure 3. and at the point where each channel entered Doe Creek. Lower grab samples from Channel 1 were taken 303 feet below the work. Lower grab samples in Channel 2 were taken 164 feet below the work.

ISCO #2 was 314 feet and 145 feet, respectively, below the confluence of channels 1 and 2 and Doe Creek. ISCO #1 was placed at the bottom of the monitoring area 215 feet above a culvert on Road 566 to monitor downstream effects. ISCO #3, the control, was placed 3,394 feet above the start of the monitoring project to collect background sediment and turbidity levels. All ISCO intakes were placed in mid-channel facing upstream at a depth of 6/10 of the total water depth.

Figure 3. DOE CREEK MONITORING LOCATION.